Corporate Plan Summary
2014-2015 to 2018-2019

Operating Budget Summary 2014-2015
Capital Budget Summary 2014-2015

Atomic Energy of Canada Limited

AECL Corporate Plan Summary

AECL's Corporate Plan is approved by the Government of Canada on an annual basis. The 2014-2015 to 2018-2019 Corporate Plan was approved by the Governor in Council May 29, 2014. This summary of the Corporate Plan informs Parliamentarians and Canadians of the Corporation's strategic direction and objectives for the planning period and provides its financial plan, operating and capital budgets. Commercially detrimental information is excluded from this summary pursuant to section 153(1) of the *Financial Administration Act*.

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1 EXECUTIVE SUMMARY

1.1 Introduction

This Corporate Plan will guide AECL through a pivotal period in the evolution of the corporation. The Government of Canada (GoC) announced that Phase 2 of AECL restructuring will involve the implementation of a Government-owned Contractor-operated (GoCo) model at AECL to bring private sector rigour and efficiency to the operation of AECL's customer programs, research facilities and technological services. This plan is fully aligned with that policy direction and describes AECL's transition towards this new management model. Section 1.2 provides a summary of the organizational and governance changes occurring through restructuring.

Atomic Energy of Canada Limited (AECL) is Canada's premier nuclear science and technology (S&T) organization, a strategic element of Canada's national S&T infrastructure as well as its national innovation system.

In support of the Federal S&T Strategy: *Mobilizing Science and Technology to Canada's Advantage - 2007*, AECL has established seven S&T Priorities to which all of its S&T activities are aligned (see insert).

AECL S&T Priorities

1. Understand and address public perceptions of the effects of radiation
2. Enable CANDU technology as a key contributor to Canada's energy portfolio
3. Understand, prevent and mitigate risks associated with nuclear operations and activities
4. Advance the knowledge-base for informed standards and regulation
5. Enhance national and global nuclear security
6. Secure options for future energy needs and sustainability through nuclear technology
7. Develop and demonstrate the minimal impact of nuclear technologies on the environment

AECL is an important enabler for Canada's nuclear industry. As a tier one nuclear nation, Canada is involved in virtually every aspect of the nuclear industry – from uranium mining and processing, to the construction and operation of nuclear power plants, to decommissioning and waste management. AECL contributes to Canada's knowledge advantage in these key areas, positioning the Canadian nuclear industry for success domestically and internationally.

AECL has unique capabilities for working with radioactive materials that, under license from the federal regulator[1], have applications in fields important to public policy and to the nuclear sector domestically and internationally. Its public policy roles include the provision of medical isotopes, the management and disposition of GoC legacy liabilities and historic wastes, and support in the development of federal policies and national capabilities to address nuclear safety and security.

[1] The Canadian Nuclear Safety Commission regulates the nuclear sector in Canada.

AECL's Value Proposition has three key aspects, all of which have a national impact:

- As an advisor to, and agent of, the GoC for public policy purposes
- As an enabler of business innovation and technology transfer
- As a generator of highly qualified people

AECL's Strategic Outcome is: Canadians and the world receive energy, health, environmental and economic benefits from nuclear science and technology, with confidence that nuclear safety and security are assured. In order to meet this Strategic Outcome, the GoC has provided AECL with the following future missions for the restructured corporation:

1. Nuclear decommissioning and waste management
2. Federal nuclear science and technology
3. Nuclear S&T products and services for third-parties
4. Production of Molybdenum-99 (Mo-99) (slated to end in 2016)

AECL's work is categorized by programs, which are framed in the AECL Program Alignment Architecture (PAA). The PAA acts as the mechanism by which AECL delivers against its missions.

AECL's PAA comprises six output programs, or lines of business, facing external customers and two enabling/ supporting programs facing internal customers.

Output Programs:

Program 1.1 **Nuclear Industry Capability:** The Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges. Canada is ensured a strong nuclear power sector.

Program 1.2 **Nuclear Safety and Security:** Federal activities, regulations and policies, related to nuclear or radiological issues, are supported by the necessary expertise and facilities.

Program 1.3 **Clean, Safe Energy:** The development of energy technologies that make a beneficial impact on Canada's use of clean energy.

Program 1.4 **Health, Isotopes and Radiation:** Canadians experience health benefits from nuclear S&T.

Program 1.5 **Nuclear Environmental Stewardship:** Federal nuclear sites are clean and healthy environments.

Program 1.6 **Nuclear Innovation Networks:** Canadian S&T communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

Enabling Programs:

Program 1.7 **Mission-Ready Science and Technology Infrastructure:** Scientists and engineers from AECL and its partner organizations have access to licensed facilities and services that enable nuclear innovation and production in a safe campus environment that is fully compliant with all legislation for conducting nuclear-related activities.

Program 1.8 **Internal Services:** Provide the business and administrative support functions and infrastructure to enable the efficient and effective delivery of all program outputs.

1.2 Planning Environment

In May 2009, the GoC concluded that restructuring is necessary to position AECL to be more competitive, reduce financial exposure for Canadian taxpayers and improve conditions for the entire nuclear industry to succeed. The GoC subsequently launched a two-phase process, and in Phase 1 successfully concluded the divestiture of AECL's CANDU Reactor Division to SNC-Lavalin in October 2011. The divestiture transformed AECL into a stand-alone science and technology organization: AECL Nuclear Laboratories (NL).

In February 2013, the GoC announced that Phase 2 of AECL restructuring will transition the NL to a GoCo model, similar to models implemented in the United States and United Kingdom. The GoCo model will be adopted and adapted to meet Canadian requirements. The new model will bring private-sector rigour and efficiencies to the management of AECL's customer programs, research facilities and technological services.

The objective of Phase 2 of restructuring is to transform the NL in order to leverage its capabilities and resources to deliver nuclear S&T-related products and services successfully to government and third-party customers, and fulfill decommissioning and waste management needs, while containing and reducing costs and financial risks for Canadian taxpayers over time.

In the fourth quarter of 2013-2014 or the first quarter of 2014-2015, AECL will establish a wholly-owned subsidiary, a Site Operating Company[2] (SOC), which will manage and operate the NL. The SOC will initially be effectively identical to today's NL. This internal reorganization will result in the transfer of virtually all of AECL employees, core

[2] The term Site Operating Company (SOC) has been coined in the United Kingdom to characterize the enduring business entity established to manage UK nuclear operations under contract to the UK Government in a GoCo business relationship. Ownership of the SOC is placed with the competitively sourced GoCo contractor.

capabilities, management and safety systems, customer contracts and operating licenses to the subsidiary company.

In parallel with the creation and operationalization of the SOC, capability will be developed within AECL to position the restructured Crown corporation – identified as Restructured AECL (R-AECL) to distinguish it from today's entity – to perform its new primary role of contract oversight. R-AECL will be developed under the oversight of its Board and Shareholder and provide strategic oversight of the GoCo contract. The restructured Crown corporation will become fully operational with the transfer of the shares of the SOC.

Throughout this transition and beyond, the GoC and AECL have committed that nuclear safety must not and will not be compromised.

Completion of the GoCo procurement and award of the contract are expected to occur in Fall 2015. This Corporate Plan and the accompanying multi-year budget have been developed with the expectation that AECL will transition to operate under a private sector business model during the planning period in a customer relationship with government and third-parties. This plan therefore presents AECL financials by focusing on delivering results for both government and third-party customers, with appropriate customer pricing and the associated revenues and margins.

1.3 Strategic Direction

AECL's President and CEO set the following direction for the planning period prior to the completion of restructuring:

- Respect Nuclear Safety
- Deliver on Commitments
- Be Ready for Transition

AECL's intention is to continue on course according to this direction.

In preparation for the transition to the GoCo model, AECL will focus on strategic improvement to continue on its journey to excellence. This Corporate Plan identifies four areas for strategic improvement as priorities in the context of preparing the company to transition through restructuring successfully. AECL has already made progress in these areas and will continue to do so over the planning period:

- Pursue excellence in nuclear safety
- Deliver increased customer value and cost savings
- Grow revenues and margins through customer engagement and business innovation
- Deliver on our commitments to AECL restructuring

Restructuring presents the opportunity for the NL to become Canada's national nuclear laboratory, serving government and third-party customers and stakeholders. To position AECL to seize this opportunity, the company has identified ten Centres of Excellence (COE) (see insert) by which it sustains its unique competitive advantage and Value Proposition. The COE are capability areas that make AECL unique in the nuclear industry, and complement AECL's PAA by providing the capabilities required to address the current and projected customer needs of AECL programs.

AECL Centres of Excellence

1. Nuclear and radioactive material management
2. Irradiation and post-irradiation services
3. Nuclear safety, security, and risk management
4. Radiation biology, radioecology and dosimetry
5. Materials and chemistry in nuclear applications
6. Advanced nuclear fuels and fuel cycles
7. Systems engineering
8. Advanced computing, modelling and simulation
9. Hydrogen and hydrogen isotopes management
10. Environmental remediation and nuclear waste management

With the launch of its new Business Development Framework (BDF), AECL will be repositioned as a customer-centric organization and will market the unique nuclear S&T expertise, technology and facilities in its COE. Over the course of the planning period, the BDF will leverage AECL's COE to exploit existing products and services, and will incorporate customer needs and feedback into the development of innovative new product and service offerings.

1.4 Financial Summary

This Corporate Plan contains financial projections for the five year planning period.

In 2012-2013, AECL made a commitment to live within its means and abide by the spirit and intent of the GoC's Deficit Reduction Action Plan which was initiated that year. AECL established an objective to reduce the demand on GoC funding for operating expenditures by a targeted 7.5 per cent over the next two years with 2011-2012 as the base year. This commitment provides for a cumulative projected reduction of 8.3 per cent for the fiscal year ending 2013-2014.

AECL is also committed to adhering to the GoC freeze of operating budgets for federal organizations resulting in government funding for operations being held constant for 2014-2015 and 2015-2016.

Building on the company's planning objectives in 2013-2014, AECL will continue to ensure prudent management of public funds by reducing risk and financial exposure for taxpayers, and by driving value-added results for Canadians.

The previous Corporate Plan described AECL's intention to move to full cost recovery, subject to market conditions, for third-party work, with the introduction of an appropriate pricing model. This year, the Plan provides financial projections for federally funded

S&T work based on the model AECL uses to price third-party work. The consolidated financial projections ensure AECL's pricing model is appropriate for the value of its goods and services within the market, while also reducing operating costs.

The following table provides a high-level summary of the budget projections for the Nuclear Laboratories and the GoC funding requirements.

AECL Financial Summary

Nuclear Laboratories $ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Revenue/Funding									
Government Funding	484	504	584	537	630	653	594	642	3,057
Third-Party Revenue	113	122	116	128	128	119	107	94	575
	597	**626**	**700**	**665**	**759**	**772**	**701**	**736**	**3,632**
Direct Program Expenditures									
P 1.1 - Nuclear Industry Capability	34	33	44	38	34	35	35	37	**180**
P 1.2 - Nuclear Safety and Security	67	65	49	54	54	54	57	57	**275**
P 1.3 - Clean, Safe Energy	19	23	32	26	26	26	27	27	**130**
P 1.4 - Health, Isotopes and Radiation	125	88	99	78	78	42	31	29	**258**
P 1.5 - Nuclear Environmental Stewardship	141	152	207	198	237	237	223	259	**1,155**
P 1.6 - Nuclear Innovation Networks	1	1	12	13	13	13	12	12	**62**
P 1.7 - Mission Ready S&T Infrastructure	179	207	194	210	286	294	243	242	**1,256**
P 1.8 - Internal Services	41	45	59	72	72	72	74	74	**363**
	607	**614**	**695**	**688**	**778**	**772**	**701**	**738**	**3,674**
Funding Surplus (Deficit)	(10)	13	5	(23)	(19)	-	-	-	**(42)**
Working Capital Requirements	10	(13)	(5)	23	19	-	-	-	**42**
Net Cash Flow	-	-	-	-	-	-	-	-	-

AECL Consolidated $ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Government Funding									
Decommissioning & Waste Management	153	164	220	237	275	292	279	316	**1,398**
S & T	62	95	110	113	112	112	114	114	**565**
Mo-99	106	66	57	41	40	20	1	1	**103**
R-AECL	-	-	-	15	15	15	15	15	**75**
Capital	25	55	85	81	136	148	127	129	**622**
Non-Recurring	7	26	25	-	-	-	-	-	-
Costs Unrecovered from Customers	132	100	86	51	52	65	59	67	**294**
Total Government Funding	484	504	584	537	630	653	594	642	**3,057**
Wrap Up Office	212	213	94	59	-	-	-	-	**59**
Consolidated Government Funding	696	718	678	596	630	653	594	642	**3,116**
Third-Party Revenue	113	122	116	128	128	119	107	94	**575**
	809	**840**	**794**	**723**	**759**	**772**	**701**	**736**	**3,691**
Expenditures									
Nuclear Laboratories	607	614	695	688	778	772	701	736	**3,674**
Wrap Up Office	141	63	80	19	-	-	-	-	**19**
	748	**677**	**775**	**706**	**778**	**772**	**701**	**736**	**3,693**
Funding Surplus (Deficit)	61	162	19	17	(19)	-	-	-	**(2)**
Working Capital Requirements	(61)	(162)	(19)	(17)	19	-	-	-	**2**
Net Cash Flow	-	-	-	-	-	-	-	-	-

Note: Minor differences are due to rounding.
Mo-99 funding includes ISRP capital.

Other key observations for the planning period include the following:

- Based on detailed financial modeling and analysis to 2018-2019, the Corporate Plan identifies costs that are unrecovered from customers. These costs are borne by GoC and represent the net difference between AECL's costs and revenues. Reduction of unrecovered costs is a priority and is achieved through several means, including the end of the Mo-99 mission, increases in third-party commercial revenue that generates additional margins, the introduction of appropriate pricing for third-party and government customers (including federally-funded S&T work), and containment of costs through improvement initiatives.
- The Mo-99 NRU mission will end in 2016, in line with GoC policy. Subsequent to that event, AECL expects that the NRU will be repurposed and will continue operation until 2021 – pending the GoC's decision and regulatory approval - at expected lower operating costs. A repurposed NRU will provide AECL with the opportunity to grow third-party revenues and generate margins through new business opportunities.
- This Corporate Plan reflects the implementation of a change in the recovery of Nuclear Legacy Liabilities Program (NLLP) overheads to reflect full cost recovery for that program, consistent with the re-estimate of the decommissioning and waste management liability. This increase in "margin" from the NLLP, now aligned with the full costs of the program, has reduced the requirement for other GoC funding.

Through the implementation of the BDF, AECL has the opportunity to exceed its baseline revenue and work towards achieving stretch financial revenue targets. The following table outlines the impact of incremental revenues from stretch targets on cost unrecovered from customers.

Comparison of Baseline Revenue and Stretch Target

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Costs Unrecovered from Customers									
Reference Case	132	100	86	51	52	65	59	67	294
Stretch Target	132	100	86	50	51	40	27	34	202
Reduced Costs Unrecovered from Customers with Stretch Target	-	-	-	1	1	25	32	33	92

Note: Minor differences are due to rounding.

2 MANDATE

The mandate for Atomic Energy of Canada Ltd. (AECL), a Crown corporation, flows from the powers given to the Minister of Natural Resources under the *Nuclear Energy Act*:

- To undertake research with respect to nuclear energy
- To cause nuclear energy to be utilized
- To license, sell or otherwise dispose of discoveries and inventions relating to nuclear energy

Going forward, the Government of Canada (GoC), through Natural Resources Canada (NRCan), is restructuring AECL. The GoC completed Phase 1 of AECL restructuring in October 2011 with the divestiture of AECL's Commercial Operations business to Candu Energy Inc., a wholly-owned subsidiary of SNC-Lavalin. With Phase 1 of restructuring complete, AECL's headquarters were transferred from Mississauga to Chalk River, both in Ontario.

In February 2013, the GoC announced that Phase 2 of AECL restructuring will transition the Nuclear Laboratories (NL) to a Government-owned Contractor-operated (GoCo) model, similar to models implemented in the United States and United Kingdom. The objective of this phase of restructuring is to significantly transform AECL's NL to leverage the capabilities and resources to successfully deliver nuclear science and technology (S&T) products and services to government and third-party customers, and fulfill decommissioning and waste management needs, while containing and reducing costs and financial risks for Canadian taxpayers over time.

The GoC is proceeding with a competitive procurement and selection of the GoCo Contractor. The GoCo contract will be overseen by a re-purposed AECL Crown corporation, described in this plan as the Restructured AECL (R-AECL).

Completion of the GoCo procurement and award of the contract are expected to occur in 2015. Throughout this transition and beyond, the GoC and AECL have committed to ensuring that nuclear safety must not and will not be compromised.

Further to the direction embodied in legislation, the GoC has provided the following future missions for the restructured NL:

- **Nuclear decommissioning and radioactive waste management**: Support the Government in its obligation to address its nuclear legacy and historic waste liabilities.

- **Nuclear S&T for GoC departments**: Provide nuclear S&T capabilities and services to GoC departments that rely on the NL to fulfil their mandates related to nuclear safety, security, public health and the environment.

- **Nuclear S&T and related products and services for third-party customers**: Continue to support the nuclear industry's need for in-depth nuclear research and development and test and evaluation expertise on commercial terms.

In addition to these three missions, the GoC will also assess the business case for an industry-driven, cost-shared, nuclear innovation agenda. The GoC has signalled its policy direction that AECL will end the supply of the medial isotope, Molybdenum-99 (Mo-99), from its National Research Universal (NRU) reactor by 2016. Accordingly, AECL will end this mission and re-purpose NRU, pending the GoC's decision and regulatory approval, until its planned shutdown in 2021, to meet commercial and public policy needs effectively and efficiently.

This Corporate Plan spans this period of restructuring implementation and the associated evolution of AECL governance. AECL's public-policy role prior to the award of the contract is described below. The evolution to the GoCo model is explained in Section 3 of this plan.

2.1 Nuclear Laboratories

The NL have unique capabilities for working with radioactive materials that, under license from the federal regulator, have application in fields important to public policy and to the nuclear sector domestically and internationally.

In alignment with the federal S&T strategy, AECL's NL organization leverages its unique capabilities in working with radioactive materials to contribute to four principal GoC outcome areas:

- An innovative and knowledge-based economy
- A clean and healthy environment
- Healthy Canadians
- A safe and secure Canada

AECL's Value Proposition has three key aspects, all of which have a national impact:

- As an advisor to, and agent of, the GoC for public policy purposes
- As an enabler of business innovation and technology transfer
- As a generator of highly qualified people

This Value Proposition informs the manner in which AECL drives quality and excellence in the delivery of its mandate.

Advisor to, and agent of, the GoC for public policy purposes

The NL is relied upon for the provision of unbiased information related to nuclear S&T, providing advice in support of GoC in its various capacities: policy maker, regulator, operator, performer, customer, and partner for S&T in the public good. Today, the NL is an agent of the GoC in several matters of public policy, including:

- Management and disposition of liabilities associated with legacy wastes at AECL sites resulting from past development of nuclear technology and nuclear energy in Canada.
- Management and disposition of liabilities associated with historic wastes at sites across Canada for which the GoC has taken responsibility.
- Provision of key expertise to support the development of policies, practices and national capabilities to address nuclear safety and security, including strengthening of non-proliferation and counter-terrorism regimes.
- Research and testing to support the Canadian Nuclear Safety Commission's (CNSC) understanding of nuclear safety issues and the development and application of nuclear safety and regulatory standards.
- Provision of medical isotopes to Canadians. As one of the world's largest producers of radioisotopes, the NRU reactor is also a multi-purpose research reactor that is Canada's premier facility for nuclear power and materials research. The NRU reactor produces a range of radioisotopes, including Mo-99, iodine-125, iodine-131, iridium-192, xenon-133 and cobalt-60 that are used for medical imaging, cancer diagnostics and therapy, as well as industrial applications production.

The GoC has previously announced the intention to end the NRU production of Mo-99 beyond 2016. The public policy role of the NL will continue to evolve during the 2014-2015 fiscal year, pursuant to the GoC's decision on an innovation agenda.

Enabler of business innovation and technology transfer

The NL has a strong record of positioning the Canadian nuclear industry, including its full value chain, for success domestically and internationally. Going forward, the NL will continue to engage with the best and brightest innovators and entrepreneurs from around the world, keeping home-grown talent in Canada and stimulating innovation throughout the industry. Greater engagement with businesses will also result in greater revenues to offset the requirement for federal funding.

As a service provider to Candu Energy Inc. and the wider Canadian nuclear industry, the NL plays a crucial role in assisting its partners to maintain and enhance the performance of the CANDU fleet, to develop new technologies for a broad range of nuclear power and

non-power applications, and to advance the next generation of reactors, fuels, and energy solutions.

Generator of Highly-Qualified People
With its capability for knowledge generation, innovation and discovery, the NL supports an extensive network of stakeholders, clients and partners.

The NL provides access to the unique environment to develop the advanced nuclear workforce required for a knowledge-based economy. Generations of Canadians along the nuclear S&T value chain have benefited from access to the organization's laboratories, facilities and highly-trained staff. An examination of the human capital resident in both the Canadian nuclear S&T community and the Canadian nuclear industry community reveals that many have had a deep and enduring connection to the company.

As a result of NL operations, Canada's next generation of nuclear scientists, engineers, operators and entrepreneurs are being trained at AECL. The NL will continue to support the development of highly qualified people for the public sector.

2.2 Wrap-Up Office

The Wrap-Up Office (WUO) manages the retained liabilities of AECL's CANDU Reactor Division that were not part of the sale to Candu Energy Inc. The responsibilities of the WUO include management of outstanding obligations, claims and litigation related to Commercial Operations, management of the remaining Life Extension Projects that are sub-contracted to Candu Energy Inc., and management of the GoC funding provided to complete Enhanced CANDU 6 (EC6) reactor technology development. After AECL has been restructured, the WUO will remain a part of R-AECL.

3 CORPORATE PROFILE

3.1 Introduction

AECL is an agent Crown corporation of the GoC reporting to Parliament through the Minister of Natural Resources. It is governed by a Board of Directors which provides strategic direction and advice to the President and Chief Executive Officer (CEO).

AECL's vision is to be a global partner in nuclear innovation.

AECL's Strategic Outcome is: Canadians and the world receive energy, health, environmental and economic benefits from nuclear S&T with confidence that nuclear safety and security is assured.

With a complement of 3,285 full-time employees (as at December 2013), AECL is a strategic element of Canada's S&T infrastructure and national innovation system. As Canada's premier nuclear S&T organization, AECL provides crucial policy, program and innovation support to the GoC, the Canadian nuclear industry and Canadian academia.

AECL was incorporated under Part 1 of the *Companies Act,* 1934, by way of Letters Patent dated February 14, 1952. The Corporation applied for, and was granted, continuance under the *Canada Business Corporations Act* on July 8, 1977; amended July 15, 1982. AECL, through its Board of Directors, is part of the portfolio responsibility of the Minister of Natural Resources Canada.

In May 2009, after an extensive review of AECL, the GoC concluded that AECL's mandate and structure limited its success and development, and that restructuring was necessary to position AECL to better compete in the global marketplace, reduce taxpayer financial exposure and create better conditions for the entire Canadian nuclear industry to succeed.

On October 2, 2011, the GoC completed the divestiture of AECL's CANDU Reactor Division to SNC Lavalin Group Inc., and AECL's mandate now excludes the commercial activities related to the design, development, construction, servicing and refurbishment of nuclear power reactors. AECL continues to earn third-party revenues primarily through support to Candu Energy Inc., isotope production, heavy water sale or lease, and research and development services to the CANDU Owners Group (COG). For AECL's research and development services, competition in the marketplace is minimal due to AECL's combination of unique facilities, technologies and expertise. In the heavy water sales and leasing market, AECL's competition comes mainly from one other supplier. In the isotope market, AECL faces competition from domestic and international suppliers.

In February 2013, the GoC publicly launched Phase 2 of AECL restructuring, focused on the NL. A Request for Expression of Interest on the future of the Laboratories was

issued to determine stakeholder willingness to share in financial risks, managing, partnering and contracting.

In the coming months, the GoC will engage in a competitive, collaborative procurement process, including a Request for Proposals, for the management and operation of AECL's NL. The GoC is seeking to implement a GoCo model, as is done in other jurisdictions, such as the United States and the United Kingdom.

The objective of Phase 2 of restructuring is to significantly transform AECL's NL to leverage the capabilities and resources to successfully deliver nuclear science and technology (S&T) products and services to government and third-party customers, and fulfill decommissioning and waste management needs, while containing and reducing costs and financial risks for Canadian taxpayers over time.

Completion of the GoCo procurement and award of the contract are expected to occur in 2015. This will result in changes to the corporate profile over the time frame of this Corporate Plan. Forecasted changes to AECL's governance are highlighted in Section 3.3. Further changes to its corporate profile will be decided upon and implemented under the direction and oversight of this modified governance.

3.1.1 Nuclear Laboratories

In the implementation of the NL restructuring, AECL's corporate structure will evolve, as outlined below.

In the fourth quarter of 2013-2014 or the first quarter of 2014-2015, AECL will establish a wholly-owned subsidiary, a Site Operating Company[3] (SOC), which will be responsible for the day-to-day operations of the NL. AECL will move virtually all of its employees into the SOC. The SOC will be responsible for the planning, delivery and execution of the work that is performed today by AECL, including managing employees and their benefits. The SOC will be enabled to use and exploit NL assets and intellectual property (IP), subject to existing contractual obligations and restrictions.

On completion of the GoCo procurement with the contract awarded, envisaged to occur in Fall 2015, AECL will transfer 100 per cent of the shares of the SOC to the GoCo Contractor. The SOC will be an enduring entity through future re-competes of the GoCo contract, with only ownership of the shares of the SOC being transferred, should a different Contractor be selected. The current operations of the Nuclear Laboratories are expected to remain unchanged in every respect following the operationalization of the SOC, and continue that way up until the point of share transfer at the conclusion of the procurement process.

[3] The term Site Operating Company (SOC) has been coined in the United Kingdom to characterize the enduring business entity established to manage UK nuclear operations under contract to the UK Government in a GoCo business relationship. Ownership of the SOC is placed with the competitively sourced GoCo contractor.

3.1.2 Restructured AECL

In parallel with the creation and operationalization of the SOC, new capability will be developed within AECL to position the restructured Crown corporation – identified as R-AECL to distinguish it from today's entity – to perform its new primary role of contract oversight. R-AECL will be developed under the oversight of its Board and Shareholder and provide strategic oversight of the GoCo contract, essentially functioning as the proxy customer and contract technical authority. The restructured Crown corporation will become fully operational with the transfer of the shares of the SOC, its wholly-owned subsidiary, and the signing of the GoCo contract. R-AECL will remain the asset owner, with the assets operated by the Contractor.

3.1.3 Wrap-Up Office

The activities of the WUO are funded by the GoC on an annual basis, separate from the activities of the NL, according to an annual plan developed by the WUO under joint oversight by AECL and NRCan. The WUO currently reports through AECL, and will report to R-AECL once it is established. The WUO will have approximately 15 full time employees in 2014-2015.

3.2 AECL's Nuclear Laboratories Program Alignment Architecture

AECL's work is categorized by program and framed in the AECL Program Alignment Architecture (PAA). The PAA is the framework by which AECL delivers against its missions.

The AECL Board of Directors has adopted the Treasury Board of Canada's PAA as the mechanism through which it responds to both external and internal customer needs in order to deliver its future missions as provided by the GoC:

1. Nuclear decommissioning and waste management
2. Federal nuclear science and technology
3. Nuclear S&T products and services for third-parties
4. Production of Mo-99 (slated to end in 2016)

Within the PAA, AECL's work is categorized by program and operationalized through a robust governance and management framework that translates GoC funding and third-party revenues into results and deliverables. Furthermore, AECL's PAA is comprised of six output programs, or lines of business, facing external customers and two enabling/ supporting programs facing internal customers. The PAA has three levels: program, sub-programs and projects. The six output programs and their expected results are as follows:

Program 1.1 - Nuclear Industry Capability: The Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges. Canada is ensured a strong nuclear power sector.

Program 1.2 - Nuclear Safety and Security: Federal activities, regulations and policies, related to nuclear or radiological issues, are supported by the necessary expertise and facilities.

Program 1.3 - Clean, Safe Energy: The development of energy technologies that make a beneficial impact on Canada's use of clean energy.

Program 1.4 - Health, Isotopes and Radiation: Canadians experience health benefits from nuclear S&T.

Program 1.5 - Nuclear Environmental Stewardship: Federal nuclear sites are clean and healthy environments.

Program 1.6 - Nuclear Innovation Networks: Canadian S&T communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

These output programs are supported by two enabling programs:

Program 1.7 - Mission-Ready Science and Technology Infrastructure: Scientists and engineers from AECL and its partner organizations have access to licensed facilities and services that enable nuclear innovation and production in a safe campus environment that is fully compliant with all legislation for conducting nuclear-related activities.

Program 1.8 - Internal Services: Provide the business and administrative support functions and infrastructure to enable the efficient and effective delivery of all program outputs.

Figure 1 summarizes the first two levels of the PAA for the NL and its alignment with the GoC's outcome areas. The table also identifies the connection between the AECL PAA and the missions of the NL today.

At the level of the sub-program, the AECL PAA provides a unique mapping to one of these four missions or to overheads. Alternatively, sub-programs may provide indirect support to output programs, thereby being an overhead to be funded through margins on customer-facing work. The grouping of these sub-programs into programs does not consistently result in programs that are unique to a single mission. Instead, the grouping provides a coherent set of six suitably differentiated lines of business that are responsive to AECL's multiple customers.

A detailed description of each program is provided in Section 6 of this Corporate Plan, along with highlights of achievements, objectives for a three-year period, and a summary of the reference-level budget forecast for each program. Further financial details are provided in Section 7.

It is expected that the GoCo Contractor, once in place, will be responsible for reviewing and adjusting the manner in which the lines of business are identified and managed. This change will occur under the oversight of AECL's principal regulator, the CNSC.

Federal Outcome Area	A Clean and Healthy Environment	Healthy Canadians	A Safe and Secure Canada	An Innovative and Knowledge-based Economy

AECL Strategic Outcome	**Strategic Outcome 1:** Canadians and the world receive energy, health, environmental and economic benefits from nuclear science and technology, with confidence that nuclear safety and security is assured.

DIRECT OUTPUT

Program 1.1 Nuclear Industry Capability

- [c] CANDU Energy Inc. & Other Industry Support
- [c] CANDU Owners Group (COG) Support
- [b] Technology Development for the Nuclear Industry
- [c] Heavy Water Sales & Leasing

Program 1.2 Nuclear Safety and Security

- [b] Non-proliferation & Counter-terrorism
- [e] Nuclear Response
- [e] Nuclear Materials Handling
- [b] Nuclear Safety Technology
- [e] Nuclear Security

Program 1.3 Clean, Safe Energy

- [b] Generation IV Technologies
- [b] Tritium & Fusion Technologies
- [b] Hydrogen Technologies
- [b] Sustainable Energy Technologies
- [b] Materials Science & Chemistry
- [b] Small Reactors

Program 1.4 Health, Isotopes and Radiation

- [c] Isotope Production
- [d] Isotope Supply Reliability & Integrated Implementation Plan
- [b] Radiation Biology and Health
- [d] Mo-99 Isotope Production

Program 1.5 Nuclear Environmental Stewardship

- [a] AECL Nuclear Legacy Liabilities
- [a] Whiteshell Decommissioning
- [a] Port Hope Area Initiative
- [a] Historic Wastes
- [b] Environmental Technologies
- [c] Nuclear Waste Services
- [e] Environmental Management

Program 1.6 Nuclear Innovation Networks

- [b] Canadian Neutron Beam Centre
- [b] Nuclear Innovation Partnerships
- [b] Nuclear Workforce of the Future

SUPPORTING / ENABLING

Program 1.7 Mission-Ready Science and Technology Infrastructure

- [e] NRU Reactor Readiness
- [e] Nuclear Facilities Readiness
- [e] Nuclear Waste Management Readiness
- [e] Facility Development
- [e] Provision of Real Property & Municipal Facilities
- [f] Infrastructure Revitalization
- [e] Integrated Implementation Plan Phase 2
- [e] MPF Shutdown

Program 1.8 Internal Services

- [e] Human Resources Management
- [e] Management & Oversight
- [e] Communications
- [e] Legal
- [e] Financial Management
- [e] Information Technology
- [e] Business Development
- [e] Strategic Initiatives
- [e] Supply Chain Management
- [e] R-AECL and SOC Implementation

Missions

- [a] Waste & Decommissioning
- [b] Federal S&T
- [c] Third-Party Products & Services
- [d] Mo-99 (Mo related isotopes) Production
- [e] Overhead
- [f] Capital

Figure 1: Nuclear Laboratories Program Alignment Architecture

3.3 Corporate Governance

Over the time frame of this Corporate Plan, AECL's governance and organizational structure will transition in response to NL restructuring, as outlined earlier in this plan. This section further describes that transition.

3.3.1 Board of Directors

AECL operates under the strategic direction and oversight of its Board of Directors. The Board currently consists of five Directors plus the President and CEO, for a total of six members (see Appendix 7). The independent members currently represent the Canadian business and S&T communities. The corporate governance structure of AECL is similar to that of other corporations incorporated pursuant to the *Canada Business Corporations Act* with the exception that AECL's Directors, the Board Chair and the President and CEO are appointed by the GoC by Order-in-Council. Directors are normally appointed for a term of three years and are eligible for re-appointment on the expiration of their term. Incumbent directors continue in office until their successors are appointed. The Board is accountable to Parliament through the Minister of Natural Resources.

The Chair of the Board, currently appointed for a one year term, is responsible for the effective operation of the Board of Directors, including setting the tone for good corporate governance, generating the governance environment within which the Board fulfills its responsibilities, and embodying the values that are essential to good corporate governance and effective Board operations.

The President and CEO, currently appointed for a two-year term, is accountable for the achievement of the vision, mission and mandate of AECL as set by the Board of Directors and confirmed by the GoC. The President and CEO is also responsible for running the day-to-day business of AECL and provides strategic guidance, leadership, management and control over all activities of the corporation. The President and CEO represents the corporation externally in its relationships with GoC officials and other relevant stakeholders, and is ultimately responsible for all aspects related to strategy, policy implementation, administration and day-to-day operations of the corporation.

The Board is responsible for the overall governance of AECL. It ensures that appropriate mechanisms for financial oversight are in place at AECL, and establishes systems for performance management, risk management, succession planning and stakeholder communications – all to ensure that AECL has a solid accountability framework and governance regime to guide both management and the Board.

Figure 2: AECL Board Structure

The Board is supported by two committees: the Audit Committee and the Human Resources and Governance Committee (Figure 2).

The Audit Committee consists of members that are independent of management. The CEO is an ex-officio member of the Audit Committee and does not vote. The Audit Committee has a mandate to oversee the independent auditors, direct the internal audit function and assess the adequacy of AECL's business systems, practices and financial reporting, in accordance with the *Financial Administration Act*. The Audit Committee meets with management, the internal auditor and independent auditors on a regular basis to discuss significant issues and findings, in accordance with their mandate. The independent auditors and internal auditor have unrestricted access to the Audit Committee, with or without management's presence.

The Audit Committee ensures that the development of the Corporate Plan is in alignment with the direction provided by the Board, and reviews the Plan before it is reviewed and approved by the Board of Directors and submitted to the Minister of Natural Resources.

The Human Resources and Governance Committee oversees the areas of human resources, organizational health and safety, including nuclear safety, security, environment and corporate governance.

The Board of Directors recognizes that effective governance requires continuous improvement of corporate processes and practices necessary to ensure a high level of accountability to stakeholders. The Board regularly assesses its effectiveness and functioning through an assessment process that considers best practices in corporate governance. The Board has also created Director Standards that set out the skills and criteria required to be an effective member of the Board of Directors. These criteria are aligned with the Corporate Governance Guidelines for Crown corporations issued by the Privy Council Office, and an orientation process is in place to familiarize new Directors with the standards.

As AECL transitions from its current mandate to its future mandate wherein it provides oversight of the GoCo contract, the principles and practices of governance as summarized above are expected to continue to apply.

In the course of this transition, the AECL Board will provide direction to the company to create a wholly-owned subsidiary, which is expected to be incorporated in the fourth quarter of 2013-2014 or the first quarter of 2014-2015, with the objective of establishing operating capability for the SOC by the third quarter of 2014-2015 (Fall 2014). While the SOC is a wholly-owned subsidiary of AECL, the working assumption is that the SOC Board will be comprised of Directors of the AECL Board. The SOC Board will remain in place until such time as the Board approves the signing of the GoCo contract and the transfer of the subsidiary shares to the GoCo Contractor. The Board will appoint a President and CEO for the subsidiary in consultation with the Shareholder. R-AECL will achieve interim operating capability by the third quarter of 2014-2015 (Fall 2014), and achieve full operating capability by share transfer, which is envisaged to be in the third quarter of 2015-2016 (Fall 2015).

Following share transfer, the initial SOC Board of Directors will have no further responsibilities for the SOC. It will become the responsibility of the incoming GoCo Contractor to determine the governance and oversight mechanism for the SOC.

The relationships among the parties of the contract at the projected restructuring end-state are illustrated in Figure 3. NRCan will provide advice to the Minister of Natural Resources on nuclear policy, strategic direction, government-to-government relationships and funding for AECL. The Contractor will be accountable for the delivery of the terms of its contract, signed at the conclusion of the procurement process. The SOC will be 100 per cent owned by the Contractor, and will be accountable for performance per the terms of its agreement, also entered into at the conclusion of the procurement process. The SOC will be regulated by the CNSC, and will ensure full compliance with the terms and conditions of CNSC-issued licences and any other compliance action directed by the CNSC.

3.3.2 Executive Team

The AECL Executive Team (Figure 3) currently leads the company in response to Board and CEO direction and guidance. Through the CEO, it is accountable to the Board for establishing and sustaining the nuclear safety posture and the Health, Safety, Security and the Environment (HSSE) posture for the company, for corporate and operational decision making and managing corporate risks, for implementing strategic direction and meeting corporate and financial objectives, for establishing and implementing strategies for managing company capabilities, for directing and overseeing the planning and execution of projects and for planning and allocating enterprise resources and managing organizational change. Comprised of the President and CEO, Vice-Presidents, and General Managers, the Executive Team meets regularly and as required in multiple formats, in order to exercise strategic, operational and tactical oversight aligned with the

AECL's Governance and Management System Framework, as described below. The Executive Team oversees quarterly reporting to the Board, synchronized with the annual business cycle.

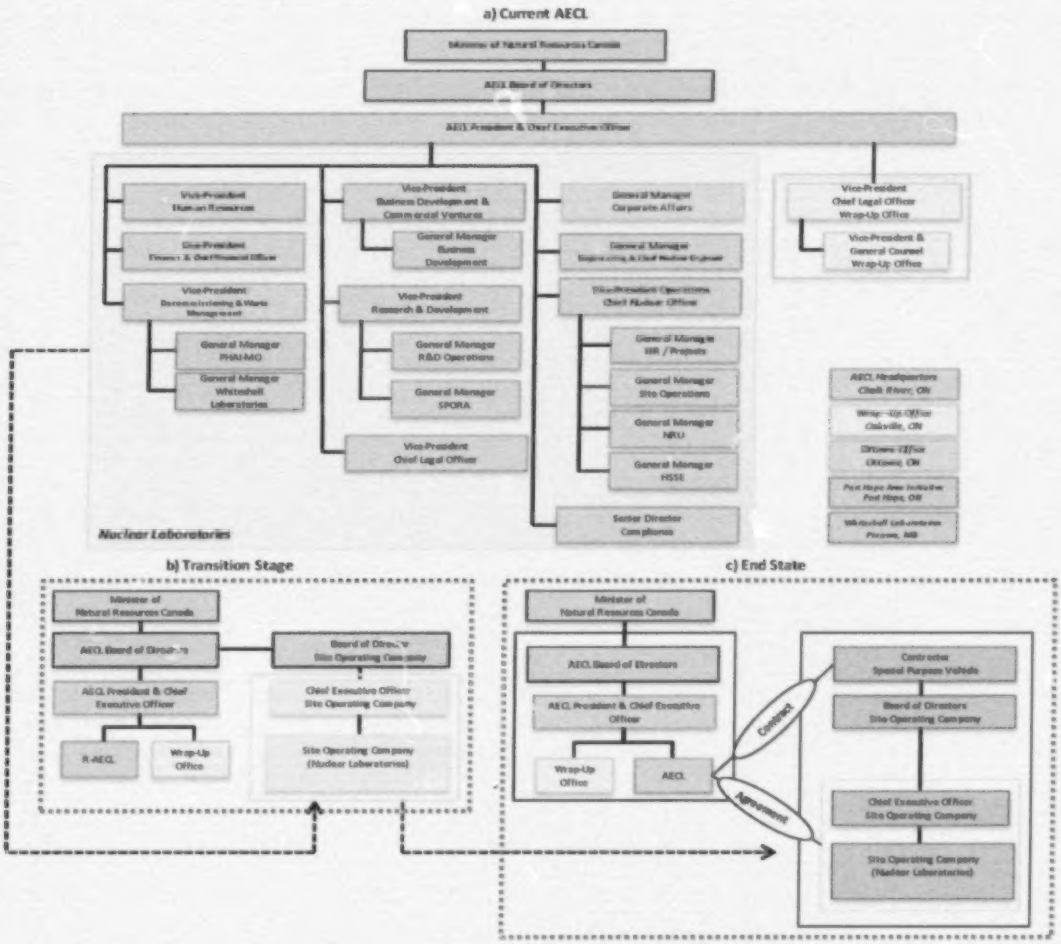

Figure 3: Organization Chart

3.3.3 Corporate Structure Transition

Figure 3 depicts how the organization and its governance will change through the restructuring transition, highlighting the structures expected to be in place at three critical junctures, namely:

- Prior to implementation of Phase 2 of AECL restructuring (Figure 3a)

- Following the creation of the wholly-owned subsidiary, expected to be incorporated in the fourth quarter of 2013-2014 or the first quarter of 2014-2015 (Figure 3b)
- Following the signing of the GoCo contract and transfer of the SOC shares to the Contractor (Figure 3c)

As depicted in Figure 3a, the Executive Team and organizational structure for the NL will become the Executive Team and organizational structure for the subsidiary, as shown in Figure 3b. The Board of the parent Crown corporation will appoint the Board of the subsidiary. The Board of the subsidiary will appoint the President and CEO of the SOC in consultation with the Shareholder.

On share transfer, the GoCo Contractor will be responsible for appointing the new SOC Executive Team and for defining the organizational structure. Going forward, the Contractor may change this structure as appropriate, so as to best accomplish contract and business objectives. Organizational change management will follow that prescribed by SOC's operating licenses granted by the CNSC.

On completion of restructuring, R-AECL will have a purpose-built organizational structure by which it will provide strategic oversight of the contract under the direction of NRCan.

3.3.4 Management System Framework

AECL has a comprehensive system of governance, operationalized through a Management System Framework (MSF) that addresses the complex and unique needs of a multi-mission nuclear S&T organization spanning public and private sector customers and stakeholders, operating in a highly regulated environment. It is also designed to facilitate the company's transition through restructuring.

AECL managers are trained and held accountable to the MSF, which is shown in Figure 4. It ensures an integrated perspective on all aspects of the management of the company and the effective integration of executive and Board-level oversight. It also reflects best of class management practices as seen in the nuclear industry, consistent with the expectations of AECL's regulators.

AECL has established this customized MSF to drive excellence within six areas of management:

Alignment and Integration Management: AECL organizational alignment is achieved through integrated corporate governance, strategic direction, planning, financial management, business development and risk management.

Program Management: Customers receive benefits and derive value through AECL's efficient, effective delivery of results.

Health, Safety, Security and Environment Management: AECL manages HSSE risk and operates in full compliance with statutory and legislative requirements.

People Management: AECL fosters a culture of leadership, value and ethics, and employee engagement and development.

Capability Management: AECL strategically develops and maintains core capabilities to respond to the needs of current and future customers and to build competitive advantage.

Improvement Management: AECL implements strategic, sustainable change.

Each of these areas has been assigned an Executive Champion who is accountable to the CEO for establishing oversight and accountability mechanisms and for providing guidance and recommendations to inform decision making and strategic planning.

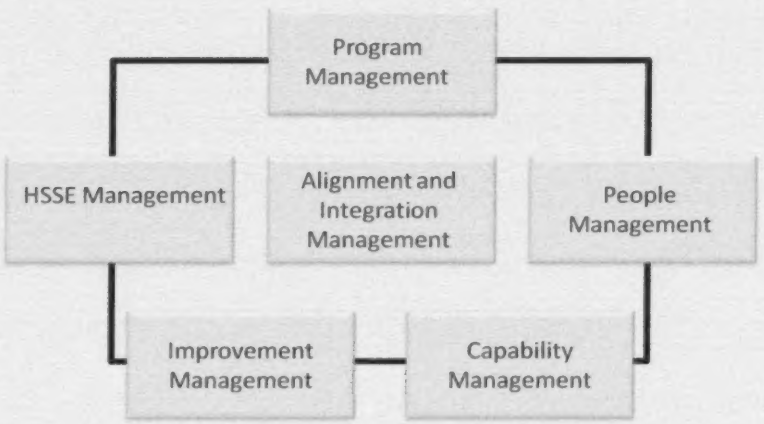

Figure 4: AECL Management System Framework

The MSF, which applies to AECL today, will become the management system of the SOC on its creation by AECL, subject to minor modifications. It will be the management system of record with the regulator at the time of share transfer to the GoCo Contractor. Following share transfer, the GoCo Contractor will have the authority to implement adjustments to the management system, subject to CNSC concurrence.

The restructured AECL will require a new, purpose-built management system, to be operational at the time of contract award and share transfer.

3.3.5 Corporate Risk Management

High level risk drivers, which are external to AECL and cannot be directly affected by the actions of the corporation, are subject to a systematic process for their identification, assessment and action. Risk drivers are maintained in a corporate risk registry that is reassessed as required, but on a quarterly basis at a minimum. The registry is reviewed

by the CEO and the Executive Team and is presented to the Board of Directors for further assessment and direction. The risk impact for AECL and mitigating actions are identified for each driver in the registry.

The Executive Champion of each Management Area (MA) systematically assesses their MA and reports to the Executive Team, the CEO and the Board of Directors on a quarterly basis, including the identification and prioritization of any risks that could prevent MA objectives from being achieved[4]. Risks that are escalated to the Executive Team are subject to assessment and, where necessary, assigned mitigating actions. The format of the quarterly review process also allows the Executive Team to identify risk patterns or risks that are common across multiple areas of the corporation.

The primary feature of AECL's risk tolerance profile is expressed in the CEO direction to *Respect Nuclear Safety*, making nuclear safety the overriding priority in decision making. AECL has internal processes and teams dedicated to the identification of nuclear safety issues and their resolution.

3.3.6 Business Planning Cycle

AECL's business planning cycle consists of three key phases: new fiscal year launch, in-year activities and prior fiscal year wrap-up. The first phase, **new fiscal year launch,** covers the period from August to March, and commences with the strategic planning process where AECL management performs an environmental scan, assesses internal capabilities, incorporates specific direction from their Shareholder and customers, and engages the Board of Directors to guide the strategic direction for the next five years. The Corporate Plan is prepared incorporating this strategic direction, and establishes specific financial, operational, and improvement objectives for the organization over the ensuing five year period. The Plan is prepared in compliance with the *Financial Administration Act* (FAA) and the Crown corporation Corporate Plan, Budget and Summaries Regulations.

In response to the strategic direction of the Corporate Plan (Section 5) three sets of operational plans are prepared:

- Program Plans are three-year rolling plans that establish the plans and respective budgets to project level by which the program will achieve Corporate Plan and customer objectives. Each program has an Executive Champion accountable to the CEO for plan development and for in-year oversight of execution.

- Strategic Initiative Plans articulate the strategic organizational change arising from the Corporate Plan. The actions supporting these plans are often executed through projects in multiple programs. For example, Productivity Enhancement is a key strategic initiative at AECL that is supported and executed through

[4] AECL's 2013 Annual Financial Report contains more information on financial risk management.

multiple projects. Each Strategic Initiative has an Executive Champion accountable to the CEO for plan development, including performance measures and for in-year oversight of execution.

- Management Area Plans provide the framework for managing the corporation in response to the Corporate Plan expectations (see Section 5.5). These plans are executed through projects in the PAA. Each Management Area has an Executive Champion accountable to the CEO for plan development, including performance measures and for in-year oversight of execution.

The second phase of the business planning cycle, **in-year monitoring and control**, involves elements such as performance and financial oversight, performance assessment and reviews, and reporting. The accountable Executive Champion for each of the programs, Strategic Initiatives, and Management Areas assesses performance against measures, monitors potential risks to execution, and reports progress regularly to the Executive Committee. When required, in response to changing conditions or a change in customer requirements, adjustments to the plans are managed through a defined change control process.

The third phase of the business planning cycle, **prior fiscal year wrap-up**, covers the period from March to June, and includes year-end activities such as the Management System Review and the Annual Financial Report.

The Management System Review consolidates process-specific evaluations by the process owners with a broad range of information gathered through the year through the six Management Areas to inform the next fiscal year plans by providing suggested improvements.

The Annual Financial Report reviews AECL's spending and revenue performance over the previous fiscal year and discusses the factors that impact these results. The Annual Report is the primary mechanism by which Crown corporations are made accountable to Parliament and Canadians.

Following restructuring, R-AECL will establish a business cycle appropriate to its new contract oversight role, and the processes associated with AECL's existing business cycle are expected to remain with the SOC.

3.4 Corporate Plan and Restructuring

This AECL Corporate Plan provides a multi-year outlook for the corporation through the period of transition and implementation of the GoC's direction pertaining to the restructuring of AECL. Prior to share transfer, AECL will produce a consolidated Corporate Plan with the SOC as a wholly-owned subsidiary. Subsequent to share transfer, planning for the SOC will be the responsibility of the GoCo contractor. This Corporate Plan, in its focus on AECL's programs, capabilities, management system and customers, is expected to be most akin to the envisaged focus of the future plan for the SOC.

4 STRATEGIC CONSIDERATIONS FOR THE PLANNING PERIOD

This Corporate Plan has been developed to deliver on AECL's mandate while being responsive to two significant areas of external consideration: AECL restructuring and key situational risks. AECL's Strategic Direction (Section 5) outlines specific steps that will be taken in response to these considerations through the MSF, while Section 6 describes the specifics of how this direction will be implemented in AECL's programs.

4.1 Expectations for the Restructuring of AECL Nuclear Laboratories

The restructuring process will implement a GoCo model to manage the NL in the delivery of its missions (see Section 2). This restructuring will put the NL on more secure footing by introducing private-sector discipline and commercial vision. The GoC, through the oversight provided by AECL, will expect the GoCo Contractor to continue the tradition of excellence in nuclear S&T products and services at the NL, in support of the needs of Canada and of industry.

Through restructuring transition, AECL will work closely with the GoC to ensure that the company maintains the appropriate legal, governance, and management framework during transition. It will also address key operational considerations, such as renewing collective agreements for AECL employees, addressing the implications for site operating licences and other matters of significance.

This Corporate Plan has been developed to ensure alignment with the following GoC expectations of the benefits to be derived from the implementation of the GoCo contract. Through the implementation of this plan, AECL will take action to ensure the company is on the appropriate trajectory to help set the conditions for success for the GoCo Contractor, for the employees of the SOC, for SOC customers and stakeholders and for the GoC. The specific strategic considerations are:

1. **Effect transformational change in the culture of the NL.** Changes to process and culture associated with the transition to private sector operation are expected to drive cost reductions and efficiencies. The 2014 to 2019 Corporate Plan shows a reduction in site overheads over the next five years. These projections assume that overheads associated with S&T and decommissioning activities will continue to decrease through restructuring to a level that private-sector management is anticipated to achieve. This transformational change is in line with AECL's effort to abide by the spirit and intent of the GoC's Deficit Reduction Action Program.

2. **Reduce the GoC's legacy liabilities over time.** The waste and decommissioning effort for effective and efficient elimination of the nuclear liabilities has been accelerated, in line with Nuclear Legacy Liabilities program (NLLP) renewal. The budget projections in the 2014 to 2019 Corporate Plan

reflect an achievable increase in decommissioning activity over the next five years, driven by two factors: the advancement of major projects from the design to construction phase, and the adoption of an accelerated approach to decommissioning facilities that reduces the cost of care and maintenance in the longer term.

3. **Leverage NL capabilities to deliver S&T effectively and efficiently to Canadians, GoC departments and to third-parties, consistent with the GoC's economic objectives.** The NL has important and unique capabilities to meet the needs of both government and third-party domestic and international customers. The projections for 2014-2019 are that the NL will grow third-party revenues, thereby producing greater results that will drive industry innovation and competitiveness and, in turn, create positive outcomes for the Canadian economy. At the same time, these revenues will generate additional margins that will offset the costs of the NL to the GoC and taxpayers.

4. **Optimize site operations and infrastructure, better allocate costs to external clients.** The GoC has concluded that AECL customers must better contribute to site overheads. The budget projections herein incorporate pricing of all third-party work, and work for which government is the customer, at full-cost recovery at a minimum, subject to market conditions. There is a continued focus on accurately identifying and costing government as customer activities; these projections price S&T services for which government is the customer based on the model AECL uses to price third-party work.

   This Corporate Plan identifies near-term capital priorities to address urgent HSSE needs under GoC funding, and medium term needs that the GoCo Contractor will be expected to assess and implement in the most cost-effective manner, consistent with an appropriate business case.

5. **End Mo-99 production.** The GoC has signalled its policy direction that AECL will end the production of Mo-99 from its NRU reactor in 2016. As a result, AECL will take action to end this mission. The NRU will be operated in a repurposed mode to 2021, pending the GoC's decision and regulatory approval, to provide irradiation services for commercial and public policy needs.

4.2 Situational Risks

AECL recognizes risk management as an integral part of sound strategic planning and corporate governance. Drivers that have the potential to create risks to AECL's progress have been identified and mitigating actions have been put in place.

Federal and Provincial Government Priorities

The external political and policy environments in Canada significantly impact AECL. The corporation is directly affected by federal and provincial policies and decision-making in the areas of nuclear energy and S&T. Some risks to AECL are as follows:

- The Government of Ontario has announced a long-term energy plan that will see the refurbishment of its existing nuclear fleet, while deferring potential new-build beyond the time horizon of the plan.

- AECL will take steps to support an innovative domestic nuclear supply chain as it services this refurbishment investment, while attempting to access other international nuclear markets.

- Saskatchewan has shown increased interest in growing provincial capability across the spectrum of small modular reactor (SMR) technology, with the possible deployment of nuclear power generation. If the province announces a decision to pursue an SMR project, it would be creating a one-off capability that will require new strategies to support new nuclear technology, safety, regulation and waste management.

- AECL will bring its extensive and varied nuclear technology management, reactor safety, regulatory support, nuclear waste management expertise and advice to the Government of Saskatchewan, and enable consistency, for example, with the federal framework for nuclear waste management policy.

Fukushima Implications

The earthquake and tsunami that affected the Fukushima Daiichi nuclear plant in March 2011 highlighted the need for all nuclear facilities to assess their capability to withstand and respond to credible external events, such as earthquakes, and, where necessary, to make improvements to their facilities and emergency response capabilities.

AECL NL has conducted such assessments, and has now started to implement projects to address Beyond Design Basis Events for the NRU reactor and the Chalk River site. AECL has also begun to strengthen the documentation for severe accident management and to improve emergency response capabilities for such events.

Retained Liability Claims

As a result of past third-party relationships, AECL faces potential liability claims that could present a significant financial risk to the organization.

AECL will therefore ensure that it is prepared to represent the continued interest of the organization in the face of these claims.

Isotope Business Uncertainty

As AECL approaches the planned wind-down of Mo-99 production in 2016, volumes and pricing within the Mo-99 market are becoming increasingly difficult to forecast. Key drivers of this risk are: increasing capacity/ volume of Mo-99 supply from other international producers such as Australia, South Africa and Russia; possible changes in demand from our third-party client due to broader supply chain impacts; and, linked to the above, the impact on demand due to incentives offered by the United States to move away from highly-enriched uranium (HEU)-based products. These incentives came into effect in January 2013.

AECL is mandated to provide Mo-99 production capability through 2016. To mitigate risks, AECL will continue to optimize internal processes to deliver Mo-99 at lower volumes, and build resilience to fluctuations in revenues by improving efficiencies and increasing workforce flexibility. Additionally, AECL will focus on opportunities for new business growth. With the resolution of the litigation with Nordion, AECL has greater ability to seek new isotope customers.

Restructuring Implementation Challenges

The restructuring process requires the completion of a number of procurement steps that have been publicized by Public Works Government Services Canada (PWGSC). If the procurement is not executed according to schedule, potential bidders may drop out of the process. Restructuring requires AECL to establish the R-AECL organization and the SOC subsidiary. Impediments to either of those actions will delay the overall implementation.

Phase 2 of AECL restructuring is moving forward under a comprehensive governance framework that includes NRCan, PWGSC, and AECL. Through that governance framework, engagement with central agencies can be secured to ensure timely support for AECL to form a subsidiary and begin to establish the R-AECL organization.

Revenue and Margin Sustainment and Growth

While AECL's projections for revenues and margins are stable in the first two years of the Plan, through stretch financial revenue targets as outlined in Appendix 5, AECL will continue to seek opportunities for further growth. To enable this growth, AECL will increase the level of activity on improving customer relationships in order to sustain and grow current customers, and to secure new customers. The anticipated end of a heavy water leasing arrangement will occur during this planning period, which presents an additional risk to the sustainment and growth of margins as the heavy water business is a significant source of margins currently.

AECL's strategic improvements, Section 5.3, have been developed to ensure success in this area. Cost reductions achieved through the second strategic improvement, Reduce Costs through Enhance Productivity and Effective Execution, will assist to enable higher

margins associated with the increases in revenues that are achieved through the third initiative; Grow Revenues and Margins through Customer Engagement and Business Innovation. This strategic improvement will leverage the marketing of AECL's expertise and the state-of-the-art facilities in COE and programs. The establishment of a Business Development Framework is also a key activity to mitigate this risk area.

People Challenges

Employee attraction, retention and engagement, along with the reshaping of AECL's workforce through attrition and redeployment, are key people-management challenges expected during Phase 2 of AECL restructuring. These risks fall within, and are amplified by, the larger set of situational risks and other workforce change-management challenges, including meeting AECL's goal to abide by the spirit and intent of the Deficit Reduction Action Plan in its 2012-2013 to 2016-2017 Corporate Plan; the end of Mo-99 isotope production in 2016; and pending decisions on the future operation of NRU.

Workforce planning and talent-management strategies are targeted to ensure that AECL is sufficiently positioned to deal with these people management risks. Plans to mitigate these risks include the identification of critical positions, key employee retention, succession and knowledge management. Cultural change and employee engagement initiatives are planned to align to the guiding principles of respecting nuclear safety, living within our means, sustaining value and being transition ready. The focus of these initiatives is on reinforcing the trust relationship between AECL, its employees and unions. At the core of AECL's change leadership is a dedication to regular and transparent communications.

Changes in Waste and Decommissioning Liabilities Management

AECL is the agent of the GoC for the disposition of legacy and historic radiological wastes. It has developed and is proceeding with the implementation of multi-year plans to address and ultimately provide permanent disposition of these wastes.

These wastes are a focus for concern of many Canadians. Canada has a robust regulatory framework under which the waste programs are approved and overseen. However, this regulatory framework also considers the concerns of citizens; by consequence, there is risk that AECL may not obtain regulatory approval of plans, resulting in added costs and schedule delays.

AECL is taking proactive measures to engage and consult with local communities regarding waste programs and to support regulatory review.

Health, Safety, Security and Environment - Known and Emergent Risks

All programs at AECL are executed with due regard for HSSE and with nuclear safety as the overriding priority. HSSE-related issues are wide-ranging and include nuclear and industrial safety, environmental protection, infrastructure management, regulatory compliance, training and leadership, human performance and cyber security.

Active tracking of HSSE indicators provides a measurement of how well systemic risks are being mitigated. To monitor these indicators effectively and efficiently, AECL has an integrated and robust oversight framework. This framework will ensure that AECL proactively plans, tracks and reports all HSSE-related activities, and makes adjustments as needed by new and emergent risks. All HSSE-related activities will be integrated through projects within all programs and monitored to ensure AECL is meeting all regulatory and legal requirements. Any adjustments or changes to these activities will be prioritized and implemented as necessary.

5 STRATEGIC DIRECTION

Starting in August of each year, as part of the New Year Launch phase of AECL's Business Planning Cycle (see Section 3.3.6), AECL management performs an environmental scan, assesses internal capabilities, incorporates specific direction from AECL's Shareholder and customers, and engages the Board of Directors to establish the strategic direction for the ensuing five years. Strategic direction consists of CEO Direction, S&T Priorities, Management Area Expectations, Strategic Improvements, and the COE.

AECL's President and CEO's direction aligns all planning activities for the planning period. Further direction is developed by AECL's management in response:

- AECL's management team identifies structural or cross-cutting strategic improvements that are required to position programs to achieve their long term commitments. These strategic improvements may impact multiple programs and/ or multiple lines of an organization and appear as a sub-program in Program 1.8. Strategic Initiative Plans are developed, as described in Section 3.3.6 to deliver these improvements and to ensure that the planned improvements have appropriate oversight by the President and CEO and the Board.

- AECL's management team assesses the MSF against the future needs of the company and establishes specific expectations for each Management Area. As described in Section 3.3.6, Management Area Plans are prepared for each Management Area to further mature or improve AECL's policies and procedures to align to these expectations. Within the Management Area of Capability Management, specific direction has been provided to strategically develop AECL's capabilities through the COE to enable the organization to: (i) execute current and future programs; (ii) contribute to Canada's nuclear S&T industry network; (iii) position AECL to address the needs of other federal departments and agencies; and (iv) give AECL the basis for competitive advantage in the market.

- Programs have responded to the CEO direction by establishing specific program objectives as detailed in Section 6 of this plan, which support the Program's outcome and are aligned with AECL's S&T Priorities. As described in Section 3.3.6, program plans are prepared to deliver on these objectives. Due to the nature of capital projects, additional direction has been provided to address the near term priorities for HSSE.

5.1 Chief Executive Officer Direction

AECL's intention, as determined by the CEO, in consultation with and endorsed by its Board and Shareholder, is to continue on its course of improvement and to deliver on its Value Proposition as the corporation transitions through restructuring, according to the following direction:

- **Respect Nuclear Safety:** As owner and operator of Canada's most complex nuclear installation, nuclear safety will be the overriding priority.
- **Deliver on Commitments:** Commitments to customers, regulators, and the shareholder will be met or exceeded.
- **Be Ready for Transition:** AECL and its people will be ready for a smooth transition through restructuring, sustaining the value of the organization, and meeting GoC priorities.

Restructuring presents the opportunity for the NL to become Canada's national nuclear laboratory, serving government, third-party customers and other stakeholders. To position AECL to seize this opportunity, and in preparation for the transition to the GoCo model, the company will continue on its journey to excellence by focusing on strategic improvements, and by developing its ten COE that are aligned to AECL's S&T Priorities. These COE provide the means by which AECL sustains its unique competitive advantage, and strategically develops its core S&T expertise, mission-ready S&T facilities, IP, collaborations and supply chain partners to address the needs of AECL customers.

5.2 Science and Technology Priorities

Under direction of its Board and in consultation with its Shareholder, AECL has established seven S&T Priorities (Table 1) to guide the development of its programs and capabilities. These priorities, which support the federal S&T strategy (*Mobilizing Science and Technology to Canada's Advantage – 2007*) flow directly from AECL's Strategic Outcome and Value Proposition. They align with items of national importance and represent issues for which AECL's shareholders require input and guidance for the public good. These S&T Priorities are intended to address the needs of AECL's many stakeholders, including the GoC, industry (nuclear and non-nuclear), the academic community and international organizations with which AECL closely interacts, such as the International Atomic Energy Agency (IAEA).

Delivering on the S&T Priorities is achieved through all six output programs. Individual projects are selected based on customer needs and on their alignment with these priorities, and key performance metrics are monitored throughout the year to assess progress. The priorities are re-assessed every three to five years to ensure that they remain relevant, that appropriate progress is being made, and that they adequately respond to changes in the external environment.

Progressing the S&T Priorities is achieved not only in all that AECL does, but also through the efforts of its management to inform and shape the programs, decisions and actions of others, including AECL's many stakeholders. The S&T Priorities provide both a focus for the work AECL undertakes, and help AECL influence and contribute to customer and stakeholder decisions for the larger public good.

AECL's S&T Priorities have been shared with industry, academic, government and regulatory stakeholders and were very well received. In the coming years, these priorities will undergo further validation with external AECL stakeholders and be adjusted, if required, based on these ongoing evaluations.

Table 1: AECL S&T Priorities

AECL S&T Priorities	Description
Understand and address public perceptions of the effects of radiation	Through science and dialogue with the public, present the facts on the effects of radiation on living things.
Enable CANDU technology as a key contributor to Canada's energy portfolio	Work with CANDU owners, Candu Energy Inc. and the entire CANDU eco-system to improve CANDU's safety, economic performance, and fuel flexibility and ensure CANDU remains an attractive option both domestically and internationally.
Understand, prevent and mitigate risks associated with nuclear operations and activities	Ensure that nuclear activities in Canada are carried out safely, and that the capability exists to assess, mitigate and respond to nuclear incidents.
Advance the knowledge base for informed standards and regulation	Using Canada's unique nuclear facilities and expertise, provide the basis for the development and application of scientifically-based regulations, standards and policies related to nuclear and radiological issues that support and advise national and international organizations and initiatives.
Enhance national and global nuclear security	With government and industry as partners, develop detection technologies and response capabilities associated with illicit production, use and transportation of nuclear materials in support of non-proliferation, safeguards and counter-terrorism.
Secure options for future energy needs and sustainability through nuclear technology	Promote regional development opportunities for nuclear (e.g., energy for the North, oil sands development) and other energy technologies that are synergistic with nuclear (e.g., hydrogen, fusion). Also, leverage advanced materials development for nuclear applications.
Develop and demonstrate the minimal impact of nuclear technologies on the environment	Through science and public engagement, generate understanding of the behaviour and impact of radioactivity in the environment and develop and implement solutions that reduce life-cycle environmental impacts of nuclear technologies through materials selection, design and waste management initiatives.

5.3 Improvement Management – Focus on Strategic Improvement

AECL sets expectations annually for prioritized investment in corporate-wide strategic improvement. This Corporate Plan identifies four areas for strategic improvement as priorities in the context of preparing the company to transition through restructuring successfully:

- Pursue excellence in nuclear safety
- Deliver increased customer value and cost savings

- Grow revenues and margins through customer engagement and business innovation
- Deliver on our commitments to AECL restructuring

AECL has made progress on these strategic improvements and will continue to do so over the planning period, as described below.

Pursue Excellence in Nuclear Safety: The concept of a strong nuclear safety culture applies to every employee in the nuclear organization, from the Board of Directors to the individual contributor. This strategic initiative gives the appropriate corporate attention to AECL's highest priority expectation in this Corporate Plan: *respect nuclear safety as the overriding priority*. A workforce with improved focus and subsequently performance on nuclear safety will add to AECL's competitive advantage going forward through restructuring. Additionally, it will significantly enhance NRU's value equation for informing the ongoing decision regarding the nuclear innovation agenda. Improved nuclear safety performance will enable more reliable operation of the NRU reactor, thus improving AECL's capability to deliver program outcomes associated with industry capability, safe energy, isotopes and nuclear innovation.

Success in developing a strong nuclear safety culture requires leadership that is respectful and skilled in developing their staff. This initiative includes leadership training that focuses on skills associated with coaching and performance management for all levels of the management team.

Deliver Increased Customer Value and Cost Savings: Since an Enhance Productivity initiative was introduced in 2011-2012, AECL has realized significant, sustainable gains in efficiency and effectiveness at all stages of program delivery, including planning, execution and exploitation. This 2014-2015 initiative will target areas of improvement that will position AECL to successfully transition to a private sector business model while achieving its safety, security and regulatory commitments. Training will be provided to employees to develop skills in best practice industry improvement principles and tools that are tied to practical applications; tailored leadership training will support and accelerate adoption of these management principles across the company. By having an engaged and aware workforce and an institutionalized culture of continuous improvement, AECL will benefit from significant cost saving in future years.

Planned improvement activities for 2014-2015 include improving the effectiveness and efficiency of work planning and management; developing an engaged, aligned and productive workforce, with consideration for project team models that best enable efficient delivery; removing non value-added activities from current waste processing; and applying lean methodologies to a larger number of AECL's processes.

The efficiency gains generated by this initiative contribute to AECL's goal to abide by the spirit and intent of the GoC's Deficit Reduction Action Plan.

Grow Revenues and Margins through Customer Engagement and Business Innovation: Stimulating business innovation is a priority in the GoC's *Economic Action Plan 2012* and a key element of AECL's Value Proposition. The intent of this strategic initiative is to stimulate business in the private sector and realize additional revenues whereby achieving its stretch revenue projections as indicated in Appendix 5, all while strengthening the focus of its people on customers. To achieve this, AECL will improve connections with private industry, focussing on customer satisfaction and revenue growth, leveraging AECL's full suite of S&T assets and capabilities within the market, and transferring its S&T innovations to the private sector for commercial exploitation. This initiative also challenges AECL suppliers to be more innovative in delivering products and services to AECL that suppliers can then exploit commercially elsewhere.

A key objective for this initiative is for AECL to strengthen its capability in commercial marketing, business development and customer relationship management through the launch of a new Business Development Framework (BDF). The BDF will position the corporation as customer-centric, marketing AECL's expertise and the state-of-the-art facilities in its COE and programs.

This enhanced business development effort supports a realignment of business capabilities and will help to unlock incremental value for the organization and the GoC. Furthermore, it helps pave the way for the future Contractor, investing in areas that will be important for future success.

Deliver on our Commitments to AECL Restructuring: AECL provides support and advice to NRCan in its lead role in completing the restructuring of the AECL NL. The objective of this strategic improvement area is to position AECL to realize the desired outcomes of a successful restructuring: private sector rigour and efficiencies in the management of the laboratories, new commercial opportunities and reduced financial cost and risk for Canadian taxpayers. In 2014-2015 this strategic improvement area will focus on the following:

- Create and operationalize the Site Operating Company;
- Create, staff and prepare R-AECL for operationalization;
- Support the evaluation of an industry-driven nuclear innovation agenda; and
- Engage and communicate with AECL employees and local host communities in a timely and effective manner.

The AECL workforce must be informed, equipped and ready for private industry. Prompt, honest communication from CEO and senior management to AECL staff is essential. These focus areas will ensure that the workforce understands the new reporting structures and expectations of the restructured company.

5.4 Capability Management – Centres of Excellence

The purpose of Capability Management is to promote AECL's COE, strategically develop and maintain core S&T expertise, ensure the availability of mission-ready S&T facilities, protect and exploit existing IP to commercialize technologies, and develop third-party capabilities through collaborations and the AECL supply chain.

In order to deliver on its S&T Priorities (Section 5.2) and fulfill its current policy roles and customer base, AECL draws on expertise and facilities from across the organization. The development of AECL's portfolio of S&T capabilities is coordinated through its ten COE (Table 2).

Table 2: AECL Centres of Excellence

1. Nuclear and radioactive material management
2. Irradiation and post-irradiation services
3. Nuclear safety, security, and risk management
4. Radiation biology, radioecology and dosimetry
5. Materials and chemistry in nuclear applications
6. Advanced nuclear fuels and fuel cycles
7. Systems engineering
8. Advanced computing, modelling and simulation
9. Hydrogen and hydrogen isotopes management
10. Environmental remediation and nuclear waste management

The COE are capability areas that make AECL unique in the nuclear industry. The COE complement AECL's PAA by providing capabilities required to deliver the programs. The ten COE Leads ensure the execution of these capability plans is integrated into relevant program plans where they will be resourced and executed. AECL's new MSF (Section 3.3.4) provides the oversight, planning, assessment, execution and overall expectations that ensure the COEs meet the needs of AECL customers.

In 2013-2014, a Management Area Plan for Capability Management was developed for AECL. The execution of this plan resulted in COE Plans for each capability area and sub-area that address the management of S&T expertise, S&T facilities, IP, collaborations with third-parties and supply chain considerations for the COE.

The COE Plans communicate the capabilities that exist at AECL to deliver S&T across its current missions and customer base, including the unique expertise, facilities and site support services required to deliver on current missions. They also provide an evaluation of the utilization of each area by the current customer base and a qualitative projection of future utilization. The COE Plans are aspirational in nature, anticipate the needs of government, industry, learning institutions and the public and will help focus and sustain AECL capabilities accordingly.

Also in 2013-2014, a qualitative assessment of each COE for the next 5–10 years of AECL operation was completed. This assessment considered the anticipated demand for these COE from waste management and decommissioning activities, traditional and new third-party customer work and a federal S&T program. Through this analysis, AECL concluded that all ten COE will remain in demand throughout the period, with seven COE expected to experience some increase in demand. These findings are driven by

an anticipated increase in waste management and decommissioning activities at AECL in the coming decade, as well as projected growth in third-party (commercial) customers. For example, AECL anticipates growth in new third-party customer work in the Irradiation & Post-Irradiation Services COE. AECL also projects significantly increased Waste Management & Decommissioning work through its Environmental Remediation and Nuclear Waste Management COE.

Over the planning period, AECL will continue to strategically develop its capabilities to enable the organization to: (i) execute current and future programs; (ii) contribute to Canada's nuclear S&T industry network; (iii) position AECL to address the needs of other federal departments and agencies; and (iv) give AECL the basis for competitive advantage in the market. In addition to developing its internal core capabilities, AECL will actively engage with its supply chain and partners to develop external, third-party capabilities.

5.5 Management Area Expectations

AECL's MSF (Section 3.3.4) ensures that AECL demonstrates excellence in management, consistent with benchmarks from the nuclear industry and leading S&T organizations. Key expectations for each area have been established by each Management Area Champion in consultation with the Executive Team and with guidance from the CEO. The expectations are:

Alignment and Integration Management:

- Respect nuclear safety
- Deliver on commitments
- Be ready for transition

Program Management:

- Deliver upon our commitments
- Be the GoC's primary nuclear S&T supplier
- Be agile in responding to business opportunities

HSSE Management:

- Maintain a nuclear safety focus
- Ensure employee safety and well being
- As leaders, commit to safety
- Deliver on HSSE improvements

People Management:

- Foster and preserve a respectful workplace
- Develop our Leaders
- Have a trained and competent workforce
- Understand and follow legislative and regulatory obligations

Capability Management:

- Be recognized for our COE
- Strategically manage S&T facilities
- Strategically develop, maintain and protect core S&T expertise
- Control, protect, manage and exploit IP to commercialize technologies
- Develop third-party capabilities through collaborations and supply chain

Improvement Management:

- Ensure excellence in management and stewardship
- Focus on strategic improvement
- Implement sustainable change

The ensuing activities to deliver on these expectations will be documented in Management Area Plans, and be given executive-level oversight (as described in Section 3.3.4).

The overriding priority across all areas of the MSF is nuclear safety – recognizing the unique risks posed by a nuclear reactor and nuclear materials.

Two key Management Area expectations that necessitate further focus over the planning period are Strategic Improvements and COE because they affect strategic change and require cross-organizational engagement in the planning process.

5.6 Capital Planning

Until restructuring has concluded, AECL's capital portfolio will be limited to the items of ageing infrastructure that pose the greatest HSSE and operational risks, while also maintaining AECL's overall capability for future business activities. The capital budget in Section 7.5 reflects the near term capital requirements due to the reduced level of capital investment from previous years and is based on AECL's Integrated Site Master Plan (ISMP). This increased investment will support near-term capital priorities that address urgent HSSE needs under GoC funding. The GoCo Contractor, once in place, will be expected to assess and implement capital investment projects in the most cost-effective manner, consistent with an appropriate business case.

6 PROGRAMS

As outlined in Section 3.2, AECL has four missions translated into six output programs. With support from two enabling programs, the output programs deliver results to government and third-party customers and, in doing so, achieve AECL's Strategic Outcome (see Figure 1). Each program has a three-year rolling plan that describes how an expected result will be achieved. Programs are divided into sub-programs containing projects. This section describes each program, including a short summary of significant achievements made in 2013-2014 (as of December 31, 2013). The primary focus, however, is on the objectives for the next three years that respond to the direction described in Section5.

In last year's Corporate Plan, AECL laid the foundation for a medium-to-longer-term repositioning of its customer-supplier relationships with government and with third-parties, by which AECL will ensure the financial viability of the company going forward, consistent with the GoC's restructuring direction.

Last year's Corporate Plan described AECL's intention to move to full cost recovery, subject to market conditions, with the introduction of an appropriate pricing model for third-party work. This year, the financial projections for federally funded S&T work are based on the model AECL uses to price third-party work. The consolidated financial projections in Section 7 ensure AECL's pricing model is appropriate for the value of its goods and services within the market, while also reducing operating costs.

The financial tables for AECL's six output programs outline program expenditures according to baseline third-party revenue projections. The strategy for achieving stretch third-party revenue targets and the resulting impact on GoC funding is detailed in Appendix 5.

The financial projections for each program anticipate the needs of AECL's government and private sector customers. The projections, while ensuring appropriate pricing, continue to adhere to AECL's objective to live within its means and builds on the success of meeting its obligations as part of the GoC's cost reduction strategy. The amount of science and technology performed for the GoC is projected to remain constant throughout the five year financial projection period.

The financial tables for AECL's six output programs also provide a value for in-kind collaborations. AECL collaborates with partners in pursuit of its S&T Priorities, which brings resources together synergistically in the completion of a project. The contribution of non-cash resources from a collaborator is measured as an "in-kind" contribution. The value of an in-kind contribution is estimated according to the guidelines issued by Canada's granting agencies, such as NSERC. As such, in-kind contributions are a valuable way to leverage AECL resources to gain a higher return on its investments, create partnerships in the S&T community, and advance AECL's S&T Priorities.

6.1 Program 1.1: Nuclear Industry Capability

Expected Result: The Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges. Canada is ensured a strong nuclear power sector.

Program 1.1 is AECL's face to the Canadian nuclear industry and spending in Program 1.1 is primarily third-party funded. The activities underway in this program ensure a strong connection between AECL and the nuclear industry, enabling business innovation and technology transfer, as embedded in AECL's Value Proposition. Most activities in Program 1.1 represent a significant source of revenue and provide the basis for a considerable amount of the collaborative work that is currently underway at AECL. Both of these trends are expected to continue in future years.

The work underway through this program provides industry with access to the AECL experts, facilities and technologies they require to be successful in the marketplace and to seize domestic and global opportunities. This model aligns well with a recent government-commissioned report that describes how government laboratories should partner with the private sector to enable innovation.

Program 1.1 is comprised of four sub-programs; all four are aligned to an AECL mission. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
Candu Energy Inc. & Other Industry Support	Third-Party Products and Services
CANDU Owners Group Support	Third-Party Products and Services
Technology Development for the Nuclear Industry	Federal S&T
Heavy Water Sales & Leasing	Third-Party Products and Services

- **Candu Energy Inc. & Other Industry Support** responds to the Third-Party Products and Services mission by principally capturing the business undertaken with Candu Energy Inc. and the Canadian utilities. Candu Energy Inc. is a wholly-owned subsidiary of SNC Lavalin and was created as a result of Phase 1 of AECL restructuring. AECL is a strategic supplier to Candu Energy Inc. as it undertakes major nuclear-related projects, provides services to utilities, and seeks new business opportunities throughout the world. AECL support provided through this program is invoiced to industry clients through a commercial proposal process.

  This sub-program also captures the value-added services provided directly to utilities that safely supply nuclear-generated electricity to Canadians. As an

example, some current projects will help utilities to demonstrate that they can operate their plants longer before refurbishment is required.

- **CANDU Owners Group Support** responds to the Third-Party Products and Services mission by ensuring support for the private not-for-profit organization that is dedicated to providing programs for cooperation, mutual assistance and exchange of information for the successful support, development, operation, maintenance and economics of CANDU-based reactor technology. As a member, AECL contributes financial resources to support COG programs benefiting all of its members, while as a supplier, AECL provides services to COG under commercial terms. COG membership and participation in the COG Research and Development (R&D) program provides important information to AECL that enables the safe and compliant operation of its many licensed nuclear facilities. In addition, COG programs generate S&T that provides value and benefit to the GoC.

- **Technology Development for the Nuclear Industry** supports the Federal S&T mission by providing support for the development of new technologies that will enhance the safety and economic performance of CANDU reactors. This work may result in technologies that lead to new revenue streams for AECL and maintains a strong and vibrant Canadian nuclear industry.

- **Heavy Water Sales and Leasing** is aligned to the Third-Party Products and Services mission by capturing the business undertaken by AECL in Canadian and international heavy water markets, including the sale and leasing of portions of AECL's heavy water inventory to both reactor and non-reactor clients. This sub-program also includes the cost for storage and management of heavy water inventory at AECL's La Prade site.

Program 1.1 Achievements in 2013-2014

- Broadened the customer base and significantly increased the revenue earned from third-parties.

- Ensured that Canada's nuclear sector has access to science and technology resources to address emergent technological challenges by responding to an urgent and critical request from a Canadian nuclear power station to refurbish components for its online fuelling machine.

- Supported the EC6 reactor by completing three large-scale experiments.

- Informed utility decisions concerning planned outages, refurbishment and life extension of key CANDU reactor components through projects involving AECL-developed tools, endurance testing of annulus spacers in its shielded facilities, and destructive tests of fuel channel pressure tubes.

Program 1.1 Objectives for 2014-2017

Program 1.1 will continue to provide the Canadian nuclear industry with the expertise needed to address high-risk technology development issues. Key objectives over the next two to three years include:

- Complete research activities relating to the EC6 reactor development program.
- Complete the COG Fuel Channel Life Management Joint Project Phase II to improve end-of-life criteria which will aid in determining the available life expectancy in CANDU fuel channels.
- Continue to expand product and service offerings, and AECL's customer base. This will be achieved by reviewing and acting upon emerging opportunities for the commercialization of AECL technologies or by providing additional services.
- Initiate a program of work including irradiations in NRU, to demonstrate the viability of using mixed-oxide plutonium/ uranium fuels in CANDU reactors.

Program 1.1 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.1 are:

- Continue to evolve the relationship with COG over the course of the Corporate Plan period.
- AECL is in discussions on longer-term planning for an industry-funded program to maintain specific AECL capabilities that are critical to CANDU utilities.
- Earn margins for both re-investment in forward-looking research and technology development in other programs and toward financing company overheads.
- Continue to minimize development costs by growing third-party collaborations.

Table 3: Program 1.1 Financial Projection

$ Millions	Actual	Budget	Plan					5 Year
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Direct Expenditures	33	44	38	34	35	35	37	180
Collaborations (In-Kind)*	72	74	72	72				
FTEs**	211	194	198	190				

** Contribution of non-cash resources from collaboralors accuracy +/- 10%*
*** FTE Accuracy of +/- 5%; includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.2 Program 1.2: Nuclear Safety and Security

Expected Result: Federal activities, regulations and policies related to nuclear or radiological issues are supported by the necessary expertise and facilities.

As the centre of federal expertise on nuclear and radiological issues, AECL maintains the safety and security of several federal nuclear sites, develops technology that is used to assure Canada's nuclear safety and security, provides nuclear crisis/ emergency response operational and advisory capabilities and provides advice to other government departments and international nuclear bodies.

Program 1.2 provides fire, security, radiation safety and nuclear material transportation services to ensure the safety and security of AECL's licensed sites across Canada and to respond to crises domestically and internationally. It also develops technologies to lead and assist international efforts in non-proliferation of nuclear weapons and materials, and provides the technical basis for the safe operation of nuclear facilities and reactors in Canada, including tools to support regulatory risk assessment and emergency response to nuclear incidents.

This program also develops expertise used to represent Canada in international forums on nuclear safety and radiological issues, and to advise and support the private and public sector on topics ranging from the safe regulation of facilities, to methods for the detection of nuclear materials.

Program 1.2 is comprised of five sub-programs, two are aligned to an AECL mission and three play a supporting role - designated as overhead. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
Non-proliferation & Counter-terrorism	Federal S&T
Nuclear Response	Overhead
Nuclear Materials Handling	Overhead
Nuclear Safety Technology	Federal S&T
Nuclear Security	Overhead

- **Nuclear Non-Proliferation and Counterterrorism** responds to the Federal S&T mission by supporting collaborations with Canadian government agencies, the private sector and international organizations to reduce the threat of nuclear proliferation by providing innovative technologies to prevent and detect illegal transport of nuclear materials. It also ensures that AECL's nuclear sites present no threat to nuclear safety.

- **Nuclear Response** supports other missions by ensuring that appropriate resources are in place to prepare, respond to and mitigate emergency events (including fire) and provides technical support as required to other nuclear sites and local, regional, provincial and national communities.

- **Nuclear Materials Handling** supports other missions by ensuring that nuclear materials are managed and transported safely, at no risk to nuclear workers or the Canadian public.

- **Nuclear Safety Technology** responds to the Federal S&T mission by developing methods that enable the safe execution of nuclear activities in Canada based on sound scientific knowledge and ensures that the regulator has access to this knowledge. It provides data, tools and measurements to support the safe regulation of nuclear facilities, and to validate and develop codes needed to perform nuclear safety analysis and define safety margins.

- **Nuclear Security** supports other missions by ensuring that AECL's nuclear sites present no threat to nuclear safety and security, and provides technical support as required to other nuclear sites in Canada.

Program 1.2 Achievements in 2013-2014

- AECL's Fire & Emergency Services conducted a drill to assess the effectiveness of its NRU Qualified Emergency Water Supply (QEWS) response measures under emergency conditions. The focus of the exercise was the interoperability between responding organizations and the results provided AECL with valuable information into its emergency response capabilities.

- AECL successfully completed the installation of its prototype cargo inspection system, which uses naturally occurring cosmic rays called muons to detect contraband nuclear materials hidden inside shipping containers. The complex installation required over 100 AECL personnel and spanned approximately one year. In the coming months, AECL will expand the technology to support international efforts for the non-proliferation of nuclear weapons and weapons-grade materials.

- A multi-disciplinary nuclear forensics team from AECL, the CNSC and National Research Council participated in a successful international exercise organized by the International Technical Working Group on Nuclear Forensics. The exercise, which also had participants from the United States of America, United Kingdom., Euratom, Australia, Brazil and South Africa, involved a hypothetical seizure of spent fuel and challenged countries to correctly identify the material's origin. Results will be published in a special issue of the Journal of Nuclear Materials.

- A COG Fukushima table top exercise was held June 2-3 with various federal, provincial, and industry players as well as AECL reps from EmP, HSSE, Operations, Safety Licensing, and Training. These exercises ensure adequate provincial and nation-wide responses to external events and identify gaps.

- A beta version of a Graphical Animation Package (GRAPE) for MAAP-CANDU Severe Accident code has been sent to AECL by Fauske and Associates Incorporated (FAI), the MAAP developers, and the draft software was sent to the CNSC, who will assist AECL in its testing and assessment. The beta release is an important achievement, marking a milestone for the joint collaboration of AECL and the CNSC to specify and procure software to aid the CNSC in their Emergency Operations Centre.

Program 1.2 Objectives for 2014-2017

Program 1.2 will continue its efforts to deliver technologies, methodologies and initiatives to promote a safe and secure Canada. Key objectives for the next two to three years include:

- Demonstrate new technologies/ methodologies to aid in the detection and attribution of illicit nuclear materials, consistent with international nuclear safeguards policy objectives.

- Develop and release prototype "advanced safety analysis code" for education and evaluation purposes.

In response to events at Fukushima, this program has reallocated resources to improve understanding of, and response to, severe accidents. These include:

- Complete investigations to improve the understanding and mitigate the consequences of containment pressurization and enhanced fission product releases during loss of power events.

- Enhance emergency preparedness and response capabilities for AECL and surrounding areas through improved collaboration between regional, provincial and federal agencies, and by sharing improvement ideas with the national and international emergency management communities.

- Perform collaborative research with the CNSC to improve their emergency operations capabilities.

Program 1.2 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.2 are:

- Improve government as customer relationship for nuclear safety and security S&T; and, national security and crisis response operations.
- Cost escalation for government funded work absorbed through productivity improvements.
- Continue to grow third-party collaborations.

Table 4: Program 1.2 Financial Projection

$ Millions	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Direct Expenditures*	65	49	54	54	54	57	57	275
Collaborations (In-Kind)**	14	13	18	20				
FTEs***	430	426	442	432				

** Includes NRU facility allocation*
*** Contribution of non-cash resources from collaborators accuracy +/- 10%*
**** FTE Accuracy of +/- 5%, includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.3 Program 1.3: Clean, Safe Energy

Expected Result: The development of energy technologies that make a beneficial impact on Canada's use of clean energy.

AECL, with its collaborators, develops, assesses and facilitates the commercialization of innovative technologies to allow for increased energy generation, enhanced safety and efficiencies, and reduced greenhouse gas creation and dependence on fossil fuels.

Program 1.3 builds upon existing investments in nuclear energy technologies required to ensure that nuclear-related energy systems are safe. This is achieved by developing the systems, materials and infrastructures required for: the next generation of nuclear reactors (Generation IV (Gen-IV)); Canada to be a key partner in the development of closed cycle (non-proliferation) nuclear fuel cycles; the application of hydrogen technologies to energy production and industrial applications; and to ensure that Canadians stay abreast of, and benefit from, developments in fusion energy and small reactor technologies.

Program 1.3 is comprised of six sub-programs, each of which are aligned to AECL's Federal S&T mission. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
Generation IV Technologies	Federal S&T
Tritium and Fusion Technologies	Federal S&T
Hydrogen Technologies	Federal S&T
Sustainable Energy Technologies	Federal S&T
Materials Science and Chemistry	Federal S&T
Small Reactors	Federal S&T

- **Generation IV Technologies** responds to the Federal S&T mission by supporting and fulfilling Canada's commitment to the Generation IV International Forum, with the goal of developing the design concept for a pressure tube supercritical water-cooled reactor (SCWR), a more efficient design than current Generation II and III reactors.

- **Tritium and Fusion Technologies** responds to the Federal S&T mission by maintaining Canada's credibility, presence and expertise in the management and application of tritium technology, including its application by the international fusion community. AECL's tritium technology, developed for the safe management of tritium in nuclear fission plants, ensures Canada is well-positioned to apply this capability to other industrial applications.

- **Hydrogen Technologies** acts on behalf of the Federal S&T mission by utilizing AECL's expertise in heavy water and hydrogen technology and its patented wet-proofed catalyst technology for applications for electrolysis (electrolytic cells) and fuel cells. It also provides the foundation for the production and application of hydrogen as an energy source and industrial feedstock.

- **Sustainable Energy Technologies** delivers against the Federal S&T mission by advancing the S&T to enable the development of advanced nuclear fuels and fuel cycles for improved resource utilization, performance and proliferation resistance.

- **Materials Science and Chemistry** responds to the Federal S&T mission by developing advanced inspection technologies to ensure system integrity is maintained, and innovative applications of nuclear materials and chemistry technologies for industrial applications. It also supports the development and operation of advanced energy systems through the application of advanced materials and chemistry required to retain structural integrity at high temperatures and over long operation times.

- **Small Reactors** responds to the Federal S&T mission by ensuring the sustained operation of Canada's fleet of university-based small reactors, and advances small reactor technology as an alternative source of power for remote Canadian communities that is safer, cleaner and more cost-effective than diesel.

Program 1.3 Achievements in 2013-2014

- Increased the number of new industrial partnerships that contribute to the program's objectives.

- Progressed the development of moderate temperature hydrogen generation for industrial applications.

- Demonstrated that the dose rates from spent advanced fuels are comparable to those from spent natural uranium fuel. This demonstration has important implications for Canada's Deep Geological Repository (DGR) concept because it confirms that as far as dose rates, the current concept remains sound.

- Progressed national efforts towards the deployment of small reactors in the north specifically by making recommendations to the CNSC that assist in establishing a regulatory position for small reactor remote monitoring and control, and participating in a Canadian Standards Association (CSA) Committee on Cyber Security for Nuclear Power Plants and Reactor Facilities.

- Enabled materials evaluations for the Gen-IV program to be carried out at lower cost and complexity through the use of steam rather than with super-critical water.

Program 1.3 Objectives for 2014-2017

- Complete the development of the Canadian Gen-IV nuclear reactor concept, meeting the technology goals of the Generation IV International Forum (GIF) by March 2016.
- Submit thermalhydraulics, safety and reactor chemistry reports annually in fulfillment of Canada's GIF obligations, while providing supervision of Gen-IV university activities on behalf of the NRCan Gen-IV Portfolio Committee.
- With industrial partners, develop advanced tritium-compatible electrolyser technologies for detritiation applications.
- In collaboration with private and academic sectors, develop and demonstrate tritium as an energy storage medium for niche applications including long-lived low power devices.
- Develop advanced electrolysers and catalysts for large-scale hydrogen production, fuel cells and next-generation passive recombiners to address hydrogen safety in hydrogen economy and nuclear applications, including Fukushima-related safety issues.
- Demonstrate innovative inspection technology to ensure the safety of nuclear power plants and other high-energy systems over extended plant life-times (up to 80 years).
- Develop and demonstrate advanced techniques for characterizing nuclear materials and components to better predict behaviour under a variety of operating conditions. Also, establish a better understanding of the effects of neutron irradiation on the behaviour of nuclear components.
- Demonstrate the feasibility of thorium fuels for use in CANDU reactors.
- Facilitate the development of new fuel concepts of potential benefit to Canada and internationally that have improved safety margins, increased efficiency and address long-term waste management considerations.

- Sustain the operation of the Canadian-supplied fleet of safe low power critical experiment (SLOWPOKE)-class small research reactors, and ensure Canada is positioned to exploit future small reactor technology to its benefit.

Program 1.3 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.3 are:

- Improve government as customer relationship for clean, safe energy S&T.
- Cost escalation for government-funded work absorbed through productivity improvements.
- Increase industry investment in AECL's clean safe energy S&T activities.
- Continue to grow third-party collaborations.

Table 5: Program 1.3 Financial Projection

$ Millions	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Direct Expenditures*	23	32	26	26	26	27	27	130
Collaborations (In-Kind)**	15	17	20	20				
FTEs***	156	172	186	178				

** Includes NRU facility allocation*
*** Contribution of non-cash resources from collaborators accuracy +/- 10%*
**** FTE Accuracy of +/- 5%; includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.4 Program 1.4: Health, Isotopes and Radiation

Expected Result: Canadians experience health benefits from nuclear S&T.

Nuclear medicine was pioneered by AECL in the mid-20th century and now reaches across the healthcare system in many forms. As a relatively young area of nuclear S&T, there is significant opportunity for new innovation to improve the quality of life for Canadians.

Program 1.4 provides a reliable supply of medical isotopes to Canada and the international community for diagnostic applications and cancer treatments. It also focuses on increasing knowledge on the effects of radiation to humans, which includes the evolving techniques and expertise required for ensuring a safe work environment for workers at nuclear installations.

Program 1.4 is comprised of four sub-programs, all of which are aligned to an AECL mission. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
Isotope Production	Third-Party Products & Services
Isotope Supply Reliability and Integrated Implementation Plan	Mo-99 (Mo related isotopes) Production
Radiation Biology and Health	Federal S&T
Mo-99 Isotope Production	Mo-99 (Mo related isotopes) Production

- **Isotope Production** responds to the Third-Party Products and Services mission by producing a range of non-Mo-99 isotopes including iodine-125, iodine-131, iridium-192, and cobalt-60 that are used for medical imaging, cancer diagnostics and therapy. Two Canadian companies are enabled by this activity.

- **Isotope Supply Reliability & Integrated Implementation Plan (IIP)** supports other missions through a broad, multi-year portfolio of work that provides hardware and process improvements within AECL's facilities that make up the isotope-production stream. Making such improvements to the NRU reactor is an essential aspect of maintaining the Chalk River operating licence.

- **Radiation Biology and Health** responds to the Federal S&T mission by seeking to reduce the probability of radiation-induced health effects (including cancer) by improving monitoring and biodosimetry services for nuclear workers. These same services are available to be used more broadly in the event of a nuclear emergency domestically or internationally. The studies of the effects of radiation on human health, which are conducted in collaboration with universities and

other research institutions, are required to inform regulation on the safe levels of radiation exposure.

- **Mo-99 Isotope Production** responds to the Mo-99 Production mission by producing the molybdenum-99 medical isotope that is eventually transported to hospitals around the world. Mo-99 production supports the business of a Canadian isotope company.

Program 1.4 Achievements in 2013-2014

- Development of the In-Vessel Leak Mitigation Tool was completed and is now ready to mitigate potential future NRU vessel leaks.
- First phase of the NRU J-Rod Welding repair project was completed. J-Rod Annulus repair tooling will reduce water reflector leaks and subsequently improve nuclear safety – AECL's overriding priority.
- MAPLE Target HEU repatriation was completed on schedule and under budget. This activity generated LEU fuel credits for fabrication of NRU driver fuel. This is a significant achievement in the risk reduction for Canada as per the International non-proliferation agreements.
- Analysis of human epidemiological and animal toxicological data showed that no cancer is produced when tissue irradiation by alpha-emitters (such as plutonium) results in organ doses below an average of 0.5 Gy. This means that current regulatory dose limits are extremely conservative.
- The Half-Mo-99 Rod Project was implemented. Mo-99 production in NRU is now running with up to four half Mo-99 rods in core; this has reduced decay losses by 12 per cent. By better matching production batch size (half rods for half batches) to daily demand, this reduction in decay losses represents annual savings in target materials of approximately 12 per cent in HEU usage for Mo-99 production.
- Execution of the IIP was maintained on schedule. IIP execution to schedule ensures NRU continues to be safe to operate.

Program 1.4 Objectives for 2014-2017

- Implement plans to end AECL's production of Mo-99.
- Achieve storage with surveillance state of Mo-99 Production Facility structures by 2019.
- Continue to deliver on commitments in the IIP, including lessons-learned from Fukushima.
- Perform studies to determine how low-dose radiation affects cancer and non-cancer diseases and aging.
- Continue research with Canadian and international organizations, with emphasis on partnerships that exploit AECL's unique capabilities to undertake biological research with radionuclides in animals.
- Continue research on the development of improved methods for the ultra-trace analysis of radionuclides in bioassay samples, including the use of advanced mass spectrometry methods.
- Partner with universities to undertake studies to demonstrate the feasibility and utility of targeted alpha-radiotherapy for the treatment of cancer.
- Partner with Health Canada and academia to participate in the testing of new treatments that can be used to remove radionuclides from the body.
- Maintain 100 per cent availability of an emergency cytogenetic biodosimetry service as an AECL contribution to Canadian and International biodosimetry networks.

Program 1.4 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.4 are:

- Maintain the existing government as customer relationships for radiological health and dosimetry S&T.
- Provide for planned exit from Mo-99 mission by 2016.
- Maintain pricing strategies consistent with the pricing principles of full cost recovery.
- Ensure that cost escalation for government funded work is absorbed through productivity improvements.
- Continue to grow leveraged third-party collaborations.

Table 6: Program 1.4 Financial Projection

$ Millions	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Direct Expenditures*	88	99	78	76	42	31	29	255
Collaborations (In-Kind)**	4	3	4	4				
FTEs***	454	451	392	395				

** Includes NRU facility allocation*
*** Contribution of non-cash resources from collaborators accuracy +/- 10%*
**** FTE Accuracy of +/- 5%, includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.5 Program 1.5: Nuclear Environmental Stewardship

Expected Result: Federal nuclear sites are clean and healthy environments.

To secure the social licence for the continued utilization of nuclear energy, the nuclear sector and the GoC must demonstrate responsible environmental stewardship.

Program 1.5 addresses the GoC's commitment to a clean and healthy environment for Canadians by: ensuring Canada's federal nuclear sites, including legacy and historic sites, are clean and healthy environments, demonstrating the responsible deployment of nuclear S&T; managing environmental risks, demonstrating sound environmental stewardship; and providing technologies, expertise and facilities in support of the safe storage and long-term management of radioactive waste in Canada. Program 1.5 also includes a number of environmentally-focused programs that AECL implements on behalf of NRCan under its Radioactive Waste Management Program[5].

Program 1.5 is comprised of seven sub-programs, six of which are aligned to a mission and one plays a supporting role - designated as overhead. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
AECL Nuclear Legacy Liabilities	Waste and Decommissioning
Whiteshell Decommissioning	Waste and Decommissioning
Port Hope Area Initiative	Waste and Decommissioning
Historic Wastes	Waste and Decommissioning
Environmental Technologies	Federal S&T
Nuclear Waste Services	Third-Party Products and Services
Environmental Management	Overhead

- **AECL Nuclear Legacy Liabilities** responds to the Waste and Decommissioning mission by executing the NLLP that is designed to reduce legacy liabilities and associated risks at AECL sites (Chalk River Laboratories (CRL) and prototype reactor locations) safely and cost-effectively, based on sound waste management and environmental principles, in the best interests of Canadians.

- **Whiteshell Decommissioning** responds to the Waste and Decommissioning mission by executing the NLLP-funded program to fully decommission AECL's

[5] As per NRCan 2013-14 Program Alignment Architecture: Program 2.3 Responsible Natural Resource Management Sub-Program 2.3.4 Radioactive Waste Management http://www.nrcan.gc.ca/plans-performance-reports/program-alignment-architecture/105.

Whiteshell Laboratories (WL) located in Pinawa, Manitoba, including decommissioning of the Underground Research Laboratory (URL).

- **Port Hope Area Initiative (PHAI)** responds to the Waste and Decommissioning mission by executing the program to clean up historic low-level radioactive waste situated in the municipalities of Port Hope and Clarington arising from the historic operations of the former Crown corporation Eldorado Nuclear Limited, and its private sector predecessors.

- **Historic Wastes** responds to the Waste and Decommissioning mission by operating the Low-Level Radioactive Waste Management Office (LLRWMO) to address and manage historic low-level waste at sites in Canada.

- **Environmental Technologies** responds to the Federal S&T mission by conducting environmental research activities for scientific, technical and compliance purposes that secure and demonstrate the environmental benefits of nuclear technology.

- **Nuclear Waste Services** delivers against the Third-Party Products and Services mission by seeking innovative waste technologies for clients and stakeholders, and providing a national radioactive waste service to laboratories and small users.

- **Environmental Management** supports other missions by providing environmental protection, waste management and decommissioning management systems, processes and services.

Program 1.5 Achievements in 2013-2014

- Completed 40 NLLP milestones, contributing to an overall 96 per cent completion rate for the 3-year NLLP-funded program, improving environmental conditions, accelerating decommissioning and increasing waste management capabilities at AECL sites.

- Contributed to the development of the Port Hope Area Initiative Procurement Framework in response to Minister of Natural Resources directive to ensure increased value for the Canadian taxpayer, thus building confidence in AECL's ability to manage public funds prudently.

- Supported Canada's role in the Global Partnership Program and commitments made at the 2010 and 2012 Nuclear Security Summits by advancing projects to repatriate Canada's HEU-bearing material.

- Demonstrated AECL's commitment to improvements in environmental stewardship through participation in the IAEA led expert review mission to review the implementation of remediation activities in areas affected by the accident at

the Fukushima Daiichi Nuclear Power Stations and to provide advice to address associated challenges.

- Supported Phase 2 of AECL restructuring through the development of reference plans describing Decommissioning and Waste Management activities and the revision of the Nuclear Legacy Liability Estimate; thereby enabling the funding and management of radioactive waste and decommissioning responsibilities through the transition period and beyond.

Program 1.5 Objectives for 2014-2017

- The NLLP will continue to reduce nuclear legacy liabilities and associated risks safely and cost-effectively through key activities such as:
    - the retrieval and transfer of impacted spent fuel from selected below-ground structures to a modern Fuel Packaging and Storage facility;
    - the immobilization of legacy radioactive liquids;
    - the decommissioning of legacy buildings that supported fuel reprocessing activities in the early 1950s;
    - advancing the decommissioning of the WR-1 reactor and the remediation of the waste management areas at WL, and the characterization of the remaining buildings and infrastructure to improve understanding of the liability;
    - maintaining AECL's prototype reactor sites in a safe shutdown state, while characterization of the site and the decommissioning of non-reactor buildings are advanced to reduce the risk and liability associated with the redundant infrastructure; and
    - proceeding with HEU repatriation projects through the shipment of HEU-bearing liquid and return of historic National Research Experimental (NRX) and NRU spent HEU fuel, reducing liabilities and supporting Canada's international commitments on nuclear security.
- Advance the objectives of Construction and Remediation Phase 2 for the Port Hope and Port Granby projects.
- Complete radiological survey and remediation planning for all small-scale sites (including residential properties) on the Port Hope Project and secure federal approval to initiate the remedial actions for these sites.
- Achieve reduced costs for waste storage through improved characterization methodologies and appropriate waste storage facilities for very low-level waste produced from site operations and decommissioning activities.

- Improve management of environmental site data by deploying state-of-the-art data management tools and technology to more readily provide information to all stakeholders, including the public.

- Identify and promote excellence in environmental remediation and nuclear waste management activities, including discovery and applied research within AECL through the continued development of the Environmental Remediation and Nuclear Waste Management COE.

Program 1.5 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.5 are:

- Deliver an increasing NLLP annual budget that grows from approximately $200 million in 2014-2015 to approximately $280 million in 2018-2019 (both values include indirect costs).

- Align budgets for the PHAI Management Office and the LLRWMO to approvals received from NRCan.

- Ensure that cost escalation is included as part of the decommissioning liability and provided within the funding.

- Implement and maintain pricing strategies consistent with the pricing principles of full cost recovery.

- Enhance government as customer relationship for all nuclear environmental stewardship S&T services.

- Continue to grow third-party collaborations.

Table 7: Program 1.5 Financial Projection

$ Millions	Actual	Budget	Plan					5 Year
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Direct Expenditures	152	207	198	237	237	224	259	1,155
Collaborations (In-Kind)*	1	2	2	2				
FTEs**	837	860	891	902				

** Contribution of non-cash resources from collaborators accuracy +/- 10%*
*** FTE Accuracy of +/- 5%; includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.6 Program 1.6: Nuclear Innovation Networks

Expected Result: Canadian S&T communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

AECL maintains a suite of critical national science facilities that support the diverse innovation needs of Canada's nuclear and radiation S&T community, which comprises industries, universities, research hospitals, and government laboratories including AECL sites.

Program 1.6 connects AECL capabilities to members of this community to enable them to pursue a spectrum of scientific goals, including clean energy, cancer research and nuclear security. It also provides a mechanism for increasing the return on investments that have been made in the scientific facilities, programs and personnel at AECL, and a mechanism to enable AECL to access alternative funding streams, thereby leading to a reduced requirement for direct federal funding for AECL projects.

This program promotes partnerships and collaborations aligned with AECL's S&T Priorities. It is estimated that AECL leverages approximately $100 million in collaborative effort, including commitments from industry, academia and international partners.

Program 1.6 is comprised of three sub-programs, all of which are aligned to the AECL Federal S&T mission. The following table outlines this alignment and the narrative below describes the sub-programs.

Sub-Program	Mission
Canadian Neutron Beam Centre	Federal S&T
Nuclear Innovation Partnerships	Federal S&T
Nuclear Workforce of the Future	Federal S&T

- **Canadian Neutron Beam Centre (CNBC)** responds to the Federal S&T mission and is funded, managed and operated by AECL, with National Research Council (NRC) staff seconded to AECL and AECL providing supporting infrastructure and programs. The CNBC operates a user-access program enabling more than 200 scientists, engineers, and students from universities, government laboratories, and industry to participate in research using the facility's six neutron beam lines. The CNBC is unique in Canada and provides Canadian scientists with the ability to research the molecular structure of materials as diverse as metals, minerals, plastics and bio-materials.

- **Nuclear Innovation Partnerships** responds to the Federal S&T mission by actively building awareness and enabling access to AECL's unique expertise and

capabilities (beyond the CNBC), and providing a mechanism for external stakeholders to engage in collaborative research opportunities with AECL.

- **Nuclear Workforce of the Future** delivers against the Federal S&T mission by supporting the development of Canada's highly qualified workforce through programs that provide training, educational opportunities, and practical experiences to Canadians interested in entering the nuclear workforce.

Program 1.6 Achievements in 2013-2014

- CNBC/ AECL, in partnership with the Canadian Institute for Neutron Scattering (CINS), delivered the 12th International Neutron Scattering Summer School to 26 graduate students and post-doctoral researchers from across Canada, the USA, Russia, Taiwan and Italy.

- The CNBC, with neutron beams from the NRU reactor, provided non-destructive assessments of the originally unknown contents of shielded capsules, demonstrating a valuable capability.

- Proposals were selected for AECL's first external call for proposals, which focused on third-parties utilizing AECL's unique facilities and expertise.

- The publication of AECL's journal, the AECL Nuclear Review, continued, including a Special Issue on Radiation in Our Environment. The journal is a forum for the Canadian and international nuclear community to present innovative nuclear S&T-related papers.

- AECL's outreach project to provide educational kits to the public was expanded to encompass an S&T video series with the Canada Science and Technology Museum (CSTM), and the distribution of Geiger Kits through the Canadian Nuclear Society (CNS).

Program 1.6 Objectives for 2014-2017

The three sub-programs are at different stages of maturity, which is reflected in the expected progress each will make over the 2014-2019 period.

- Increase the use of NRU facilities (including CNBC) by third-parties, in particular, private industry.

- Broaden communication activities to ensure that potential Canadian stakeholders who could benefit from access to AECL facilities are aware of collaboration opportunities and AECL's interest in leveraging these facilities for the public good.

- Continue to grow and mature partnership activities, enabled in part by an external call for proposals for third-party collaborations aligned with AECL's S&T priorities. As the volume of visiting scientists grows, the capacity for AECL to support and enable their work will grow in parallel through the implementation of a formal partnership process.

- Expand the externally-focused science seminar series with the intention of promoting collaborations, partnerships and learning opportunities.

- Transition the Nuclear Workforce of the Future program from conducting conceptual, exploratory activities to establishing specific educational partnerships with Canadian academic and vocational institutions.

Program 1.6 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.6 are:

- Continue to manage and operate the CNBC, with NRC staff seconded into AECL as per secondment agreement between AECL and NRC.

- Ensure that cost escalation for government funded work is absorbed through productivity improvements.

- Continue to grow third-party collaborations.

Table 8: Program 1.6 Financial Projection

$ Millions	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Direct Expenditures*	1	12	13	13	13	12	12	62
Collaborations (In-Kind)**	7	6	6	7				
FTEs***	4	77	82	82				

** Includes NRU facility allocation*
*** Contribution of non-cash resources from collaborators accuracy +/- 10%*
**** FTE Accuracy of +/- 5%, includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.7 Program 1.7: Mission-Ready Science and Technology Infrastructure

Expected Result: Scientists and engineers from AECL and its partner organizations have access to licensed facilities and services that enable nuclear innovation and production in a safe campus environment that is fully compliant with all legislation for conducting nuclear-related activities.

Program 1.7 invests in people, plant and processes to achieve safe, reliable and efficient availability of AECL's S&T infrastructure, while assuring the health and safety of employees, the local community and the environment.

Program 1.7 is comprised of eight sub-programs, one delivering AECL's Capital Plan commitments and seven delivering a supporting role – designated as overhead. The following narrative below describes the sub-programs.

- **NRU Reactor Readiness** ensures Canada's largest and most versatile research reactor is available and operated safely and compliantly in support of S&T programs.
- **Nuclear Facilities Readiness** ensures all other AECL nuclear facilities and laboratories are safe, operational and accessible to conduct S&T programs.
- **Nuclear Waste Management Readiness** provides integrated management of radioactive liquid and solid wastes resulting from the execution of AECL programs.
- **Facility Development** provides efficient maintenance service, project management processes, design engineering, improved human performance, and adherence to nuclear standards and regulations to ensure AECL facilities are compliant and fit for service.
- **Provision of Real Property and Municipal Facilities** provides safe, reliable work environments through prudent management of real property assets, enabling all programs to deliver on their plans.
- **Infrastructure Revitalization** delivers the Capital Plan by managing the improvements to replace and upgrade aged infrastructure, thereby facilitating other programs to deliver their intended outputs.
- **Integrated Implementation Plan Phase 2 (IIP 2)** is a continuation of the IIP and spans from 2016 to 2021. This sub-program facilitates hardware and program improvements to NRU, including site-wide programs associated with NRU's operation. Execution of this plan is a commitment in the Chalk River operating licence.

- **MPF Shutdown** is a sub-program to safely transition Mo-99 Production Facility (MPF) to a Storage with Surveillance (SWS) state defined in agreement with Facilities Decommissioning following the cessation of Mo-99 and Xe-133 production in 2016 October. The facility is planned to be turned over to Decommissioning in 2019.

Program 1.7 Achievements in 2013-2014

- Improvements to NRU operations continue as a result of the World Association of Nuclear Operators (WANO) peer review. A high level action plan has been established and approved by the Board of Directors to drive further improvements across the organization. The improvements focus on equipment reliability such as NRU control rods, human performance, and Class IV Reliability.

- A new strategic master plan and related capital investment plan were developed for AECL sites. The ISMP describes the linkages and strategy for aligning AECL's facilities and infrastructure with its evolving scientific and business mandates. The ISMP is integral to AECL's capital investment planning process, providing important information on facility needs and a framework to guide investment decisions for renewing the site infrastructure. The ISMP and Capital Plan provide guidance and visibility on our Site Infrastructure and Asset renewal.

- The Health Physics Neutron Generator (HPNG) Facility was commissioned and placed in service. The new neutron generator is central to planned commercial work and academic and industry collaborations in the area of radiation instrumentation development and calibration as well as irradiation-physics studies.

- Installation of the Cosmic Ray Inspection and Passive Tomography (CRIPT) facility in the old Pool Test Reactor facility was successfully completed. The purpose of the CRIPT facility is to develop/ advance technologies for the detection of fissile materials (counter terrorism) primarily for border security applications. The facility will also serve as a focal point for enhanced collaborations with Canadian academic institutes and Border Security through the application of muon tomography for industrial applications.

- Completed the strategic investment of the Building 543 Training Facility. The newly renovated training facility is shared by Radiation Protection, Occupational Safety & Health, and Human Performance. It also houses two training simulators and other equipment and tools used to meet the training needs of a diverse workforce. This on-site facility allows us efficient delivery of our training that was previously located off-site.

Program 1.7 Objectives for 2014-2017

- Return the NRU experimental loops to safe operational service. This will provide AECL and external researchers with an additional facility to advance fuel and materials-based S&T.
- Complete WANO Peer Review actions to improve NRU reactor operating performance.
- Execute the planned phases of the capital and operating infrastructure plan for projects such as B350 R&D Facility, Domestic Water System, Sanitary Sewage Treatment Facility, Storm Water Management, Shielded Modular Above Ground Storage, and Upgrades to the Shielded Facilities.
- Implement a modern life-cycle asset management program ensuring that the systems are both "fit for service" and "fit for purpose" as the CRL site mission evolves.
- Reduce fire risk at Chalk River by continuing hazard analysis and remediation on a risk basis, including replacing laboratory fumehoods.
- Execute projects that will increase energy efficiency and reduce operating costs.
- Execute on identified activities for work planning, supporting processes and waste management in order to implement sustained productivity improvements.

The delivery of these objectives and the overall activities within Program 1.7 will see further improvements in productivity and efficiencies, thereby lowering the overall expenditures within this enabling program.

Program 1.7 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.7 are:

- Cost escalation for government funded work will be absorbed through productivity improvements.
- Pursue innovative delivery of capital infrastructure projects.
- Introduce a funding stream for a further five year IIP Phase II in 2016-2017.

Table 9: Program 1.7 Financial Projection

$ Millions	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Direct Expenditures	207	194	210	266	294	243	242	1,256
FTEs*	1,014	998	1,005	1,004				

** FTE Accuracy of +/- 5%, includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

6.8 Program 1.8: Internal Services

Expected Result: Provide the business and administrative support functions and infrastructure to enable the efficient and effective delivery of all program outputs.

Internal Services consists of ten sub-programs that comprise the suite of business support functions, including Sub-Program 1.8.8 AECL's Strategic Initiatives, that comprises the organizational change agenda, and a new sub-program that dictates how a restructured AECL will function and operate following the conclusion of Phase 2 of AECL restructuring. Together, these sub-programs enable the efficient conduct of day-to-day business; compliance with applicable policies, regulations and legislation; promotion of a culture of safety and improved performance; and the required interface, as a Crown corporation, within the GoC.

Program 1.8 is comprised of the following sub-programs that support AECL's missions; all designated as overhead:

- **Human Resources Management** provides support functions and processes to enable programs to manage their human resources in accordance with collective agreements, policies and legislation. Human Resources also provides supporting programs to promote a safe work environment and healthy workforce.

- **Management and Oversight** provides senior management oversight to ensure program alignment, planning and execution. This includes the functional activities of business planning and maintenance of the AECL Management System, Regulatory Affairs, which captures AECL's Site Licence and Nuclear Oversight, responsible for identifying performance gaps to improve safety and efficiency, including audits of programs and facilities.

- **Communications** provides external and internal communications and information support. It also provides the interface between AECL management, senior elected officials and GoC departments and agencies.

- **Legal** provides legal counsel to all programs, helps manage associated legal risks and provides intellectual property management support. General Counsel also provides infrastructure and support to comply with legislative requirements under the *Public Servants Disclosure Protection Act* and *Access to Information and Privacy Act*.

- **Financial Management** provides financial operations, accounting and reporting services, and business support and analysis to enable effective financial management of the programs.

- **Information Technology** maintains the computing infrastructure, provides network applications and desktop support services, and maintains AECL's

information assets by improving document management practices, including preparation, archival and integrated repository.

- **Business Development** provides the marketing, sales and contracting services to develop and secure business opportunities for AECL with third-party and GoC customers and partners.

- **Strategic Initiatives** captures the delivery of AECL's improvement agenda initiatives.

- **Supply Chain Management** activities include a fair and equitable purchasing process, ensuring value for money, minimizing risk to AECL, ensuring compliance with federal and provincial laws, and meeting AECL fiduciary guidelines. It also includes warehousing and distribution services that meet American Society of Mechanical Engineers requirements for the handling, storage, preservation, packaging and delivery of materials for nuclear power plants.

- **Restructured-AECL and Site Operating Company Implementation** as AECL undertakes Phase 2 of AECL restructuring, a transition and re-alignment of Crown corporation functions to the new AECL is required. The sub-program is responsible for establishing how R-AECL and the SOC will function and operate following the conclusion of Phase 2 of AECL restructuring by further developing the process to achieve full operating capability at share transfer.

Program 1.8 Achievements in 2013-2014

- Improved AECL's disability management program by engaging directly with staff and consulting with third-party experts to advise and facilitate the implementation of new processes. AECL is working to align its practices with the best practices identified by the National Institute of Disability Management and Research.

- AECL launched a new safety program which renews AECL's commitment to critical rules that protect employees from injury. The program was developed to bring an improved level of focus to important safety-related activities and to strengthen employee accountability in the day-to-day operation of AECL sites, reflecting AECL's commitment to employee health and safety.

- AECL and Nordion reached a settlement that resolves all outstanding legal matters related to the production and distribution of Mo-99 to the global health community. The settlement aligns with the GoC's international policy commitments among isotope producing nations.

- AECL hosted the annual Organization of Canadian Nuclear Industries (OCI) Suppliers Day trade show, attended by more than 50 OCI member companies, and led a commercialization workshop to showcase AECL technologies to OCI members. The events were an excellent opportunity to engage and build relationships with representatives from the Canadian nuclear supply chain and to explore commercial and technology development opportunities.

- Presentation of business innovation opportunities at OCI Workshop – 12 technology presentations, 20 booths, and 95 participants.

Program 1.8 Objectives for 2014-2017

- Efficiently and effectively establish all required Internal Services functions to the new R-AECL, ensuring initial continued services are functional and in place by the first half of 2014-2015.

- Ensure all required SOC functions are in place and fully operational prior to the formation of AECL's new wholly owned subsidiary in 2014-2015.

- Enhance supervisory and management practices, and improve resource utilization and cost management. Improve succession planning and retention for executive, key management and nuclear-critical single incumbent positions will be developed, including workforce planning and talent management.

- Further progress AECL's MSF to continue to position AECL for a successful restructuring and ensure robust management practices are in place.

- Ensure that all legal and related policy matters, subject to direction from senior management and Board of Directors, are addressed to support Phase 2 of AECL restructuring.

- Ensure the business development infrastructure (people, processes and applications) are appropriately sized and capable to pursue AECL's business development objectives.

- Ensure effective IT support to programs through the implementation of new or upgraded applications, tools and infrastructure.

- Information Asset Services will develop additional standards, tools and best practices for information management.

- Reassess the accounting and reporting standards appropriate for a GoC-funded organization.

- Improve supply chain efficiencies by enhancing its value for internal partners and becoming a centre of excellence; improve external supplier engagement processes, and deliver cost savings and efficiencies through changes to internal processes and strategic sourcing/ negotiations.

Program 1.8 Financial Objectives for 2014-2019

Over the period of the Corporate Plan, the financial objectives for Program 1.8 are:

- Absorb cost escalation over the next three years through a combination of productivity improvements and alternative service delivery methods.

- Achieve outputs for final two years of the five year period at same level of funding with escalation.

Table 10: Program 1.8 Financial Projection

$ Millions	Actual	Budget	Plan					5 Year
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Direct Expenditures	45	59	72	72	72	74	74	363
FTEs*	364	354	368	387				

** FTE Accuracy of +/- 5%; includes NRU and other Facility allocations*

Note: Minor differences are due to rounding.

7 FINANCIAL STATEMENTS

7.1 Financial Overview

The consolidated financial projections which include both the NL and the WUO are included in Appendix 1. This section focuses on the financial statements for the NL. Expenditures will be required in future years for the Wrap-Up Office but cannot be included in this Summary due to commercial sensitivities.

This year's Corporate Plan is based on delivering the Value Proposition described previously while ensuring that the AECL sites are operated safely and compliantly and that its capabilities and facilities are maintained to enable readiness for transition. More specifically, the five year budget projection in this Corporate Plan has been developed in recognition of the strategic considerations in Section 4 and the direction set out in Section 5.1.

Significant changes from last year are described below to provide further understanding of the financial projections conveyed within this section.

The financial projections continue to reflect a repositioning of AECL's customer-supplier relationships with government and with third-parties, by which AECL will ensure the financial viability of the company going forward, consistent with the GoC's restructuring direction. The 2013-2014 Corporate Plan introduced an appropriate pricing model for third-party work to reflect a move to full cost recovery, subject to market conditions. Pricing has been established with the objective of recovering full costs for the service provided, including associated facility usage and related overheads, based on what markets will bear. In this Corporate Plan, for federally funded S&T, the financial projections are based on a pricing model AECL uses to price third-party work. The consolidated financial projections in this section demonstrate that AECL is committed to ensuring an appropriate pricing model for the value provided for the goods and services within the market and at the same time reducing operating costs and maintaining a conservative third-party revenue profile.

The 2014-2015 financial projections, as in past Corporate Plans, respect AECL's continued commitment to improve efficiencies and reduce costs. The five year projections in the Plan reflect a cumulative reduction in operating funding of $157 million as outlined in Appendix 6. These reductions are also influenced by the reduced costs associated with the exit of Mo-99 in 2016.

Over the five years of the financial projections, the direct costs of S&T activities for government as a customer are expected to be held constant.

The financial projections reflect the cost of the planned cessation of Mo-99 production from NRU in October 2016, consistent with GoC policy direction. Subsequent to the

Mo-99 exit, the NRU will be repurposed - pending the GoC's decision and regulatory approval - and will continue operations until 2021, focusing on non Mo-99 activities which are expected to result in a period of lower operating cost. As stated in Appendix 5, this may provide an opportunity to grow third-party revenues that will generate additional margins to reduce GoC funding requirements. A separate sub-program will be established to ensure the compliance of the NRU with the CRL nuclear operating licence through the execution of Phase II of the NRU's IIP through a second 5-year period.

This Corporate Plan reflects NLLP funding based on the indirect cost attribution model developed during the 2013 liability cost re-estimate work. This increase in recovered indirect costs reflecting full cost recovery from the NLLP program has transferred the requirement for other GoC funding. The revised re-estimate served as a basis to establish a Bridge Plan spanning the first three years of the Corporate Plan up to the point of share transfer. The basis for the subsequent years is the recently developed 10 year Waste Plan, which is also based on the liability re-estimate. Funding projections for the legacy and historic waste program reflect the anticipated cost to disposition the associated liabilities.

The projected operating expenses post 2017-2018 assumes that additional funding would be required to address inflationary cost pressures over the Plan period. Any escalation in NLLP or third-party costs would be billed through the respective programs.

The Corporate Plan assumes that until restructuring has concluded, the capital portfolio will continue to focus on recapitalization of aging infrastructure at the Chalk River site to mitigate the most immediate HSSE and operational risks. The funding profile for the full five years reflects the necessary investment to provide an appropriate recapitalization of infrastructure in line with the direction of restructuring, while helping ensure third-party interest in the NL can be secured.

7.2 Financial Summary by Program

Delivery of AECL's Value Proposition is reflected through its PAA. AECL's Strategic Outcome is achieved through six output programs and two enabling programs. The output programs are responsible for delivering results to government and third-party customers and, in doing so, achieve AECL's Strategic Outcome. Each program, as detailed in Section 6, has a three-year rolling plan that describes how an expected result will be achieved, including a short summary of significant achievements made in 2013-2014. The primary focus, however, is on the objectives for the next three years that respond to the direction described in Section 5. The programs are funded through a combination of third-party revenues and GoC funding. The financial summary by program is provided in Table 11. It is followed by specific sections providing details on these various revenue/ funding streams and related expenditures.

Table 11: Program Financial Summary

Nuclear Laboratories $ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	Plan 2015-16	Plan 2016-17	Plan 2017-18	Plan 2018-19	5 Year Total
Revenue/Funding									
Government Funding	484	504	584	537	630	653	594	642	**3,058**
Third-Party Revenue	113	122	116	128	128	119	107	94	**575**
	597	**626**	**700**	**665**	**759**	**772**	**701**	**736**	**3,633**
Direct Program Expenditures									
P 1.1 - Nuclear Industry Capability	34	33	44	38	34	35	35	37	**180**
P 1.2 - Nuclear Safety and Security	67	65	49	54	54	54	57	57	**275**
P 1.3 - Clean, Safe Energy	19	23	32	26	26	26	27	27	**130**
P 1.4 - Health, Isotopes and Radiation	125	88	99	78	76	42	31	29	**255**
P 1.5 - Nuclear Environmental Stewardship	141	152	207	198	237	237	223	259	**1,155**
P 1.6 - Nuclear Innovation Networks	1	1	12	13	13	13	12	12	**62**
P 1.7 - Mission Ready S&T Infrastructure	179	207	194	210	266	294	243	242	**1,256**
P 1.8 - Internal Services	41	45	59	72	72	72	74	74	**363**
	607	**614**	**695**	**688**	**778**	**772**	**701**	**736**	**3,674**
Funding Surplus (Deficit)	(10)	13	5	(23)	(19)	-	-	-	**(42)**
Working Capital Requirements	10	(13)	(5)	23	19	-	-	-	**42**
Net Cash Flow	-	-	-	-	-	-	-	-	**-**

Note: Minor differences are due to rounding.
Third-party funding includes cash receipts for a sales-type lease of heavy water.

In addition to this funding, AECL's output programs also benefit from in-kind contributions from its many collaborators. The estimated value of these collaborations is expected to grow to a total of approximately $125 million in 2015-2016, compared to $113 million in 2012-2013.

7.3 Third-Party Revenues

As described earlier, AECL enables business innovation and technology transfer to drive economic benefits for Canada. That engagement with industry generates revenues that reduce the level of federal funding otherwise required.

Currently, AECL generates third-party revenue and funding primarily through support to Candu Energy Inc., isotope production, heavy water sale or lease and research and development services to COG.

Revenue Projections: Third-party revenue projections in Table 11 represent a baseline that considers the level of certainty that can be provided in such projections over time. They are based mostly on products and services currently under contract and other low risk business prospects. In the first three years of the Plan, both revenues and margins remain reasonably constant. However, given AECL's efforts to bolster its business development and commercial marketing capabilities (Section 5.3), the company is positioning itself to exceed these revenue projections and seize the new growth opportunities presented. This potential has been translated into stretch targets for revenue and margin. Table 12 below outlines the impact of incremental revenues from stretch targets on cost unrecovered from customers. The stretch targets, the strategy for

achieving them and the resulting impact on GoC funding is further detailed in Appendix 5.

Table 12: Comparison of Baseline and Stretch Target

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Costs Unrecovered from Customers									
Reference Case	132	100	86	51	52	65	59	67	**294**
Stretch Target	132	100	86	50	51	40	27	34	**202**
Reduced Costs Unrecovered from Customers with Stretch Target	-	-	-	1	1	25	32	33	**92**

Note: Minor differences are due to rounding.

The BDF supports work to remove current obstacles to developing new business. The implementation of the framework will increase the probability of securing prospective work and provide an opportunity to exceed current revenue projections. As implementation of the BDF ramps-up in the coming years, the revenue projections will be revised annually in subsequent plans. For example, the move to increase capability in business development will allow for the market research needed to support facility and technology upgrades investments to support new commercial opportunities.

Pricing: In recognition that AECL's overheads are currently not fully recovered from third-party and GoC customers, the Corporate Plan assumes a transition to full cost recovery. This transition will see an increase in the amount of third-party cost recovery to contribute to these overheads. Sub-programs with external customers are priced to move to full cost recovery, taking into consideration AECL's assessment of what markets will bear.

7.4 Government of Canada Funding

GoC funding is presented in Table 13 based on the following funding streams.

- Decommissioning & Waste Management – A re-estimate of the decommissioning and waste management liability was undertaken during 2012-2013 to reflect full cost pricing that commences in 2014-2015. These are funded programs and plans are submitted to NRCan for review and approval.
- S&T – Relates to the move to full cost recovery based on the model AECL uses to price third-party work.
- Mo-99 – Describes the Isotope Supply Reliability Program (ISRP) and the related recapitalization investments. The ISRP "sunsets" in 2016-2017. Capital - Based on the Capital Plan and covers the projected capital investments for AECL
- Costs unrecovered from customers - Represents the remainder of funding required to deliver on AECL commitments that is not received from customers,

government or third-party. These unrecovered costs are funded by a GoC appropriation.

Decommissioning & Waste Management: Decommissioning & Waste Management comprise NRCan-funded programs designed to address environmental remediation issues and thereby contribute to the GoC's planned outcome of a clean and healthy environment. AECL executes the NLLP, PHAI, and LLRWMO on behalf of NRCan. The funding model includes recovery of direct costs as well as the attributable corporate and site support costs.

The NLLP is designed to safely and cost effectively reduce legacy liabilities at the CRL and WL sites and several smaller offsite locations.

The decommissioning and waste management liability was updated during 2012-2013. The NLLP funding profile is consistent with this re-estimate. For funded programs such as NLLP and PHAI, the assumption is that increases in costs incurred from inflation would be recovered..

S&T: The 2014-2015 Corporate Plan assumes that the direct costs for federally funded S&T remain constant over the planning period, and introduces an appropriate pricing model for this federally funded S&T. The financial projections are based on the model AECL uses to price third-party work. The financial projections demonstrate that AECL is committed to ensuring an appropriate pricing model for the value provided for the goods and services within the market.

GoC "B" base projected expenditures provide funding to AECL on project-by-project basis, through purpose-built federal programs that are competitively accessed.

Mo-99: The assumption for this funding is that Mo-99 isotope production will continue through to 2015-2016 and cease in 2016, consistent with GoC policy direction. This will bring an end to the ISRP as indicated in the table below.

Capital Funding: The approach taken in the treatment of capital is informed by AECL's ISMP. The ISMP connects various needs (HSSE, regulatory, business and capability) with current facility conditions to inform investment decisions. The capital budget reflects the near term capital requirements due to the reduced level in capital investment from previous years. These investments are underway. This recapitalization of the CRL site infrastructure will ready the site for GoCo Contractor. The Capital Plan excludes a small number of large capital projects that will require special treatment, potentially requiring multi-party investments such as hot cells recapitalization and a new research reactor. The projected capital expenditures reflect the estimated expenditures for the project including inflationary pressures. An amount of 10 per cent has been included in the Plan starting in 2015-2016 to provide for possible acceleration of capital projects and contingency.

AECL's Capital Plan consists of two primary components:

1) Municipal Infrastructure – Investments required immediately to renew existing and ageing CRL municipal infrastructure systems and facilities such as water, storm sewer, sewage and electrical. These are fundamental to meeting regulatory and HSSE requirements, as well as to maintaining overall site operational capability. Given that these requirements originated before the pending AECL restructuring, these capital investments will be funded by AECL via GoC funding, and not cost recovered from third-parties.

2) Ongoing Recapitalization – Consistent with industry best practices, stable annual recapitalization investments are required moving forward as part of a long term plan to meet anticipated regulatory HSSE requirements, and to maintain overall AECL capability.

Costs unrecovered from Customers: AECL is in transition from a government appropriation model to a business model where all activities will be conducted within a contractual arrangement with a customer, either Government or private sector. Pricing is established with market considerations based on value obtained. Prior to that transition, some costs at AECL are not recovered from customers. These unrecovered costs are funded by a GoC appropriation. In the coming years, these unrecovered costs will be reduced through the change in approach to pricing and other factors, including the planned ISRP wind down, productivity improvements and increased third-party revenues and margins. Appendix 5 presents AECL's stretch targets for third-party revenue and a discussion of the impact of incremental increases in revenue above Corporate Plan projections on costs unrecovered from customers.

Table 13: Government of Canada Funding

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Government Funding									
Decommissioning & Waste Management	153	164	220	237	275	292	279	316	1,399
S&T *(Note 1)*	62	95	110	113	112	112	114	114	565
Mo-99	105	65	57	41	40	20	1	1	103
ß-AECL	-	-	-	15	15	15	15	15	75
Capital	25	55	85	81	136	148	127	129	622
Non-Recurring	7	26	25	-	-	-	-	-	-
Costs Unrecovered from Customers *(Note 2)*	132	100	86	51	52	65	59	67	294
Total Government Funding	484	504	584	537	630	653	594	642	3,057

Note 1: Funding for S&T activities in 2012-2013 and 2013-2014 covers all Program expenditures; starting in 2014-2015 it reflects S&T activities based on commercial rates.
Note 2: Costs Unrecovered from Customers represents the net amount of expenditures not funded through Customers (see Table 14).
Note 3: Minor differences are due to rounding.

Table 14: Revenue & Expenditure

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Revenues/Funding									
Government as Customer - *Note 1*	362	392	493	509	598	588	536	575	2,805
Third Party	113	122	116	128	128	119	107	94	575
Total Revenues/Funding	476	514	609	637	726	707	642	668	3,381
Total Expenditures	607	614	695	688	778	772	701	736	3,674
Costs Unrecovered from Customers	132	100	86	51	52	65	59	67	294

Note 1: Funding from Government as Customer includes funding from working capital.
Note 2: Minor differences are due to rounding.

7.5 Capital Budget

Funding for the capital budget for 2014-2015 is $82 million, which is required to manage the requirements of the ISMP as referenced in Section 7.4, primarily to fund HSSE, regulatory, business and capacity projects. In addition to the capital budget of $82 million for 2014-2015, an additional 10 per cent has been included in the plan starting in 2015-2016 to provide for possible acceleration of capital projects and contingency.

While AECL's Capital Plan consists of the two primary components, Municipal Infrastructure and Ongoing – Recapitalization is also divided into three timeframes:

Near Term Capital takes into account projects in both of the two components (Municipal Infrastructure and Ongoing – Recapitalization) to a total value of $546 million. The near term capital will stabilise the CRL base infrastructure ready for the GoCo Contractor, it comprises projects that are currently in implementation or ready for implementation and delaying these project implementations are unlikely to result in improved delivery, with a large number of these projects being completed within this timeframe.

Longer Term Capital provides for capital investment that is consistent with the AECL ISMP, positions the site for the transition to the GoCo model, while recognizing that future GoCo business drivers are expected to re-shape the Capital Plan. The time span for the Longer Term Capital is from 2017-2018 to 2032-2033, the value of investment being approximately $1 billion ($75 million of which is expected to be incurred in the last two years of the Plan).

APPENDIX 1: 2014-2015 CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Revenues/ Funding

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Nuclear Laboratories									
Government Funding	484	504	584	537	630	653	594	642	3,057
Third-Party Activities	113	122	116	128	128	119	107	94	575
Total Nuclear Laboratories	**597**	**626**	**700**	**665**	**759**	**772**	**701**	**736**	3,632
Wrap Up Office	212	213	94	59	-	-	-	-	59
Consolidated Budget	**809**	**839**	**794**	**724**	**759**	**772**	**701**	**736**	3,691

Note: Minor differences are due to rounding.

Government funding includes capital. Third-Party activities are prior to adjustments for the proceeds from lease payments.

Consolidated Income Statement

$Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Nuclear Laboratories									
Third-Party Revenue	93	87	93	104	103	92	86	86	471
Cost of Sales	48	49	49	57	51	40	36	37	221
Contribution	**45**	**38**	**44**	**47**	**52**	**52**	**50**	**49**	250
Funding	438	457	496	455	494	505	467	513	2,434
Period Expenses	375	419	401	404	402	395	359	353	1,913
EBIT	**109**	**76**	**140**	**98**	**144**	**162**	**158**	**209**	771
Accretion	1,515	2,427	199	199	199	199	199	199	995
Interest Income	2	8	2	2	2	2	2	2	10
Net Income (Loss) from Continuing Operations	**(1,405)**	**(2,343)**	**(57)**	**(99)**	**(53)**	**(35)**	**(39)**	**12**	(214)
Discontinued Operations	180	249	14	40	-	-	-	-	40
Net Income (Loss) after Discontinued Operations	**(1,225)**	**(2,094)**	**(43)**	**(59)**	**(53)**	**(35)**	**(39)**	**12**	(174)

Discontinued Operations	Actual 2011-12	Actual 2012-13	Budget 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Funding	212	213	94	59	-	-	-	-	59
Third-Party Revenue	109	99	-	-	-	-	-	-	
Expenses	141	63	80	19	-	-	-	-	19
EBIT	**180**	**249**	**14**	**40**	**-**	**-**	**-**	**-**	40
Total Discontinued Operations	180	**249**	**14**	**40**	**-**	**-**	**-**	**-**	40

Note: Minor differences are due to rounding.

Consolidated Balance Sheet

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19
Assets								
Cash	35	35	35	19	19	19	19	19
Accounts Receivable	338	318	169	199	199	199	120	120
Long Term Receivables	149	128	126	108	87	63	8	0
NWMO Trust Fund	39	42	46	53	57	61	64	68
Heavy Water Inventory	291	290	285	285	285	285	285	285
Inventory	29	26	26	26	26	26	26	26
Prepaid Expenses	0	12	9	11	11	11	11	11
Fixed Assets (Net)	265	288	355	418	528	641	725	803
Total Assets	**1,147**	**1,140**	**1,052**	**1,120**	**1,211**	**1,304**	**1,259**	**1,332**
Liabilities								
AP & Accrued Liabilities	134	129	85	84	84	84	84	84
Deferred Waste Funding	147	172	196	226	256	286	316	346
Employee Future Benefits	90	44	43	36	36	35	35	35
Customer Advances / Provisions	438	242	101	59	48	48	21	21
Deferred Capital Funding	192	239	312	375	474	576	651	720
Decommissioning & Site Remediation	5,679	7,970	8,038	8,146	8,186	8,207	8,148	8,110
Total Liabilities	**6,681**	**8,796**	**8,775**	**8,926**	**9,084**	**9,237**	**9,255**	**9,316**
Equity								
Capital Stock	15	15	15	15	15	15	15	15
Contributed Capital	292	264	240	215	190	165	140	140
Deficit	(5,841)	(7,935)	(7,978)	(8,037)	(8,079)	(8,113)	(8,151)	(8,139)
Total Equity	**(5,534)**	**(7,656)**	**(7,723)**	**(7,807)**	**(7,874)**	**(7,933)**	**(7,996)**	**(7,984)**
Total Equity and Liabilities	**1,147**	**1,140**	**1,052**	**1,120**	**1,211**	**1,304**	**1,259**	**1,332**

Note: Minor differences are due to rounding.

AECL will, consistent with past practice, continue to utilize heavy water proceeds received throughout the plan period to fund operations and to report the proceeds as deferred decommissioning funding.

The Waste Management and Decommissioning and Site Remediation provision represents the future obligation to address waste management and decommissioning liabilities. The liability is expressed in terms of the net present value of future expenditures required to discharge the obligation. AECL's decommissioning and waste management provision is adjusted annually to reflect progress to date, new estimates as they become available and new waste liabilities arising from ongoing operations. These new waste liabilities are not currently funded. As such, it is assumed that these new waste liabilities will be funded in the future period in which the work is undertaken to disposition those liabilities. The year-over-year change in this account represents the incremental costs to discharge the liability in the future. The adoption of International Financial Reporting Standards (IFRS) requires that the liability be re-valued quarterly using the spot interest rate in effect at the quarter end. This can result in significant increases in the value of the liability but does not represent a current cash flow requirement from the GoC. The above projections do not include the potential future impact that interest rate changes will have on the reported liability.

Deferred Waste Funding is the proceeds of the long-term receivable pertaining to the heavy water lease. Deferred capital funding is the amount of past federal funding for capital items that have yet to be amortized.

Consolidated Cash Flow

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Nuclear Laboratories									
Net Cash Flow Before Revenue & Funding	(597)	(626)	(700)	(685)	(758)	(772)	(701)	(736)	**(3,632)**
Third-Party Revenue	113	122	116	128	128	119	107	94	**575**
Government Funding	484	504	584	537	630	653	594	642	**3,057**
	-	-	-	-	-	-	-	-	-
Discontinued Operations - Wrap Up Office									
Net Cash Flow Before Government Funding	(234)	(32)	(111)	(19)	-	-	-	-	**(19)**
Government Funding	212	213	94	59	-	-	-	-	**59**
	(22)	**181**	**(17)**	**40**	-	-	-	-	**40**
Net Cash Flow	**(22)**	**181**	**(17)**	**40**	-	-	-	-	**40**

NOTE: Numbers in table above are presented on a cash flow basis.

Note: Minor differences are due to rounding.
Numbers are presented on a cash flow basis.

Positive cash flows for the Discontinued Operations – WUO are required to meet their obligations under Accounts Payable and Accrued Liabilities in the consolidated Balance Sheet.

APPENDIX 2: NUCLEAR LEGACY LIABILITIES PROGRAM (NLLP)

	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Expenditures									
Chalk River Laboratories	65	60	94	76	116	98	54	83	427
WL Decommissioning	44	44	51	55	55	73	77	78	338
Offsite Locations	5	8	11	16	18	18	48	54	153
Direct NLLP Costs	114	112	157	147	189	189	179	214	918

Note: Minor differences are due to rounding.

The NLLP is a significant component of Program 1.5. The plan projection is consistent with the liability re-estimate undertaken in 2012-2013. The amounts for the first three years starting in 2014-2015 are aligned with the Bridge Plan spanning the period until share transfer. The remaining two years are aligned with the recently developed Waste Plan that covers the ten year period subsequent to share transfer.

APPENDIX 3: 2014-2015 OPERATING BUDGET

Revenue & Net Income

$ Millions	Actual 2012-13	Budget 2013-14	2014-15
Nuclear Laboratories			
Third-Party Revenue	87	93	104
Funding	457	496	455
Expenses	468	450	461
	76	**140**	**98**
Accretion	2,427	199	199
Net Income after Accretion	**(2,351)**	**(59)**	**(101)**
Interest Income	8	2	2
Net Income	**(2,343)**	**(57)**	**(99)**
Discontinued Operations - Wrap Up Office			
Funding / Third-Party Revenue	312	94	59
Expenses	63	80	19
Net Income	**249**	**14**	**40**
Total Net Income	**(2,094)**	**(43)**	**(59)**

Note: Minor differences are due to rounding.

2014-2015 Operating Budget

The operating budget provides details of AECL's forecasted revenues/ funding and expenses for the fiscal year ended March 31, 2015, and is submitted for Treasury Board approval in accordance with the *Financial Administration Act*.

The total revenue and funding required for AECL is $642 million which includes the GoC funding of $455 million for the NL, $59 million for the WUO and third-party revenues of $128 million.

GoC funding of $455 million reflects a decrease over 2013-2014 mainly due to $25 million of non-recurring funding for Voluntary Termination Compensation (VTC) repayment received in 2013-2014. The increase in expenses to $461 million is primarily due to increased cost of sales due to increased third-party revenue. For the WUO, GoC funding is $59 million which is required to manage the retained commercial liabilities held by AECL subsequent to the sale of the CANDU Reactor Division.

Government of Canada Funding

$ Millions	Actual 2012-13	Budget 2013-14	2014-15
Nuclear Laboratories			
Decommissioning & Waste Management	164	220	237
S & T	95	110	113
Mo-99	65	57	41
R-AECL	-	-	15
Capital	55	85	81
Non-Recurring	26	25	-
Costs Unrecovered from Customers	100	86	51
Total Government Funding NL	504	584	537
Wrap Up Office	213	94	59
Consolidated Government Funding	**718**	**678**	**596**

Note: Minor differences are due to rounding.

AECL's NL reflects $537 million in funding for 2014-2015 (including GoC "B" Base Funding of $2 million). This also includes $237 million in funding for Decommissioning and Waste Management, $15 million for R-AECL and $82 million for capital funding including $1 million under Mo-99 for ISRP. The WUO has projected funding of $59 million.

Cash Flow

$ Millions	Actual 2012-13	Budget 2013-14	2014-15
Nuclear Laboratories			
Net Cash Flow Before Revenue & Funding	(626)	(700)	(665)
Third-Party Revenue	122	116	128
Government Funding	504	584	537
	-	-	-
Discontinued Operations - Wrap Up Office			
Net Cash Flow Before Government Funding	(32)	(111)	(19)
Government Funding	213	94	59
	181	**(17)**	**40**
Net Cash Flow	**181**	**(17)**	**40**

Note: Minor differences are due to rounding.

The 2014-2015 Net Cash Flow before Revenue & Funding is approximately $35 million higher than budgeted for 2013-2014.

Balance Sheet

$ Millions	Actual 2012-13	Budget 2013-14	2014-15
Assets			
Cash	35	35	19
Accounts Receivable	318	169	199
Long Term Receivables	128	126	108
NWMO Trust Fund	42	46	53
Heavy Water Inventory	290	285	285
Inventory	26	26	26
Prepaid Expenses	12	9	11
Fixed Assets (Net)	288	355	418
Total Assets	**1,140**	**1,052**	**1,120**
Liabilities			
AP & Accrued Liabilities	129	85	84
Deferred Waste Funding	172	196	226
Employee Future Benefits	44	43	36
Customer Advances / Provisions	242	101	59
Deferred Capital Funding	239	312	375
Decommissioning & Site Remediation	7,970	8,038	8,146
Total Liabilities	**8,796**	**8,775**	**8,926**
Equity			
Capital Stock	15	15	15
Contributed Capital	264	240	215
Deficit	(7,935)	(7,978)	(8,037)
Total Equity	**(7,656)**	**(7,723)**	**(7,807)**
	-	-	-
Total Equity and Liabilities	**1,140**	**1,052**	**1,120**

Note: Minor differences are due to rounding.

The long-term receivables and the deferred revenue represent the long-term heavy water lease and the associated interest income, which are reduced as payments are made. The increase in fixed assets is from planned capital purchase of $82 million less annual fixed asset depreciation.

APPENDIX 4: WRAP-UP OFFICE

On October 2, 2011, AECL and the GoC completed the sale of AECL's CANDU Reactor Division to Candu Energy Inc., a subsidiary of SNC-Lavalin. As a condition of the sale, AECL remains responsible for all pre-closing liabilities related to the CANDU Reactor Division business.

Due to the nature of the transaction, the WUO was established in October 2011 to segregate these liabilities and obligations from AECL's remaining entity, NL, and to manage them.

Management activities include the administering of and funding for the existing Life Extension Projects including: warranty, management of outstanding claims and litigation, and management of the financial support for EC6 development.

Given the nature of the work remaining, the WUO requires certain skills and abilities to discharge all of the remaining obligations and responsibilities of the former CANDU Reactor Division arising from the transaction. The WUO's focus is primarily on the management of the subcontracts with Candu Energy Inc., to complete the existing LEPs, and the commercial and legal work required to settle outstanding and new claims relating to CANDU Reactor Division's work pre-closing. This effort is supported by general office staff, engineers, accountants, lawyers, managers and other specialized staff. A small complement of AECL employees has been retained for these purposes.

The project related activities of the WUO are expected to be largely completed by 2015-2016 following close-out of LEP warranties in respect of the former CANDU Reactor Division. A strategy will be developed to deal with any residual or unresolved claims, litigation or warranty obligations beyond the projected close of the WUO. NRCan will propose options for consideration in anticipation of the WUO closure.

APPENDIX 5: THIRD-PARTY REVENUE OPPORTUNITY ANALYSIS AND STRETCH TARGETS

Through Section 7.3 of this Corporate Plan, AECL has set the baseline for its five year third-party revenue projections. This appendix details how the implementation of the new BDF will position the company to exceed its baseline projections and seize the new growth opportunities presented. This potential has been translated into stretch targets for revenue and margin. The impact of potential incremental revenue provides additional margins to assist in offsetting the costs unrecovered from customers as presented in Table 15. As introduced in Section 5.3, AECL is strengthening its capabilities in business development, international marketing and customer relationship management through the launch of a new BDF. The BDF will position the corporation as customer-centric, marketing AECL's expertise and the state-of-the-art facilities in its COE and Programs.

This framework is being established to position AECL to push beyond current commercial revenue forecasts by growing its revenue base and commercializing a greater range of its technologies. This offers immediate benefits to AECL while also paving the way for the Contractor to continue down this path with the AECL of tomorrow.

The BDF includes a customer management model that supports growth in the customer base domestically and internationally, improved relationships with customers, and provides a more thorough understanding of the competitive landscape. The model will also expand effort in market research, outreach planning, and marketing event and sponsorship.

The framework leverages the COE and will ensure AECL inventories and exploits existing products and services, and includes a strategy to incorporate customer needs and feedback into the development of innovative new product and service offerings. In this manner, the BDF works hand-in-hand with the COE. This cooperative effort will improve decision-making, particularly with respect to necessary investments in facility upgrades to take advantage of emerging business opportunities.

Building on the BDF, AECL will start to streamline internal processes to create a single review and approval process for commercial work and seek ways to accelerate product development through creative innovation strategies that support the commercialization of AECL's most promising technologies.

AECL's Approach to Exceed Corporate Plan Baseline Revenue Targets:

1. **Implement the new Business Development Framework**
   - to increase commercial marketing capabilities.
2. **Leverage the Centres of Excellence**
   - to exploit AECL expertise, facilities and technologies.
3. **Quantify Potential Markets**
   - to target customer groups.
4. **Develop the Business Case**
   - to seize opportunities.

New Growth Opportunities: With the BDF in place, AECL is better positioned to seek out and secure new growth. Opportunities are particularly noteworthy in the international marketplace (China, India, Southeast Asia and Europe), as well as closer to home in Canada and the United States of America. The framework identifies market segments of priority interest within the top ten countries globally and progress is being made to simplify commercialization assessments in these markets.

There are significant, emerging opportunities in other industrial areas, including material testing, analytical chemistry, pharmaceuticals, neutron beam applications, radiological protection research and new irradiations and post-irradiation services. Opportunities also exist to partner and commercialize technologies in security and non-proliferation. More specifically, AECL's main opportunities for new business growth lie in:

(i) the exploitation of AECL S&T to support sectors outside the power reactor business. This includes:

- power reactor technology that can also be exploited in other industries (e.g., cross-over technologies such as inspection tooling);
- technology developed to support AECL's internal needs that can be exploited in other industries (e.g., environmental monitoring and management, safety and security); and,
- new technology being developed to support current AECL R&D priorities (e.g., clean technology).

(ii) leveraging AECL existing assets. AECL plans to increase third-party revenues by attracting private companies to use its licensed sites and nuclear facilities for their commercial operations. A shared R&D program is a new strategy being developed to leverage the NRU and attract strategic partners for co-investment.

- **Repurposing the NRU:** The NRU is a multi-purpose reactor with multiple facilities, each with the potential to enable irradiation services for third-party customers in support of federal S&T and public policy objectives. Pending the GoC decision to continue to operate NRU and regulatory approval, AECL will repurpose the reactor to take advantage of opportunities arising from the end of

the Mo-99 mission in October 2016. Moving forward, capacity will be available to expand on non-Mo-99 isotope production and pursue other commercial opportunities. As part of this strategy, AECL will implement a more sophisticated pricing approach for NRU irradiation services. As a result, NRU will grow AECL revenues through irradiation services for commercial and public policy needs.

Table 15: Third-Party Revenue Projections with Stretch Targets

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Corporate Plan									
Revenues/Funding									
Government as Customer - *Note 1*	362	392	493	509	598	588	536	575	**2,805**
Third-Party Projections	113	122	116	128	128	119	107	94	**575**
Total Revenues/Funding	476	514	609	637	726	707	642	668	**3,381**
Total Expenditures	607	614	695	688	778	772	701	736	**3,674**
Costs Unrecovered from Customers	132	100	86	51	52	65	59	67	**294**
Stretch Target									
Revenues/Funding									
Government as Customer - *Note 1*	362	392	493	508	590	588	536	575	**2,795**
Third-Party Projections	113	122	116	132	140	162	161	153	**747**
Total Revenues/Funding	476	514	609	640	730	749	696	728	**3,542**
Total Expenditures	607	614	695	690	780	789	722	761	**3,743**
Costs Unrecovered from Customers	132	100	86	50	51	40	27	34	**202**

Note 1: Funding from Government as Customer includes funding from working capital.
Note 2: Minor differences are due to rounding.

$ Millions	Actu...l 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Costs Unrecovered from Customers									
Reference Case	132	100	86	51	52	65	59	67	**294**
Stretch Target	132	100	86	50	51	40	27	34	**202**
Reduced Costs Unrecovered from Customers with Stretch Target	-	-	-	1	1	25	32	33	**92**

Note: Minor differences are due to rounding.

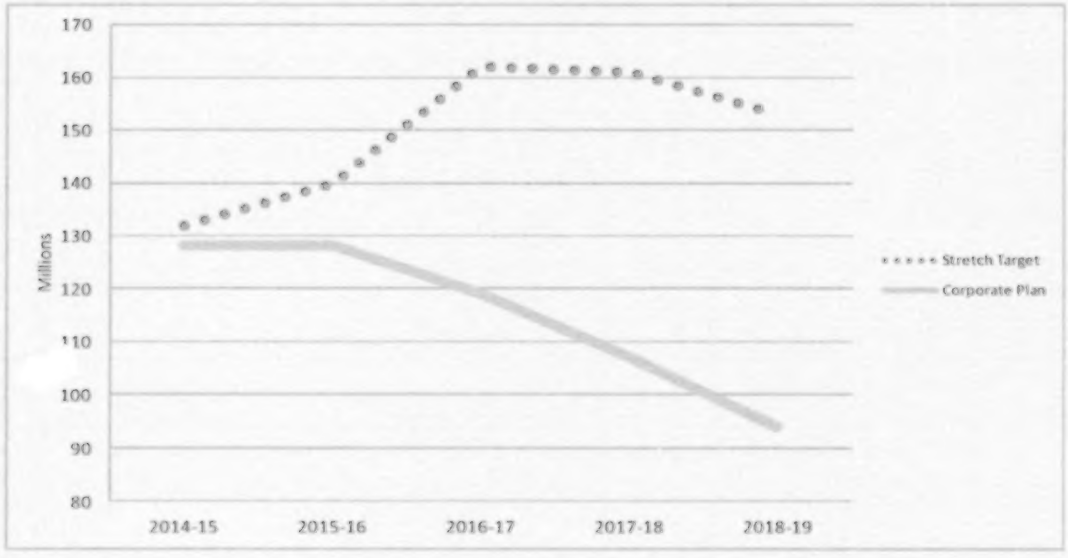

Figure 5: Third-Party Revenue Projections with Stretch Targets

Stretch Revenue Targets: Due to the implementation of the BDF, AECL has the opportunity to exceed its current baseline revenue forecast. The stretch revenue targets are a challenge to AECL's management team to exceed the revenue forecast in this Corporate Plan.

The amount of risk in achieving stretch revenue targets increases each year given uncertainties around future facility operability, contract renewals, and general market conditions. In the near term, stretch targets exceed the baseline. In this case, the majority of projected revenues are low risk as the projections include a number of current contracts and continuing arrangements with longstanding customers. In the later years, achieving the stretch targets will be dependent on commercializing early stage technology, leveraging the NRU as an educational tool and utilizing its capabilities to develop cooperative research programs.

.In addition to opportunities identified in the current pipeline, AECL anticipates additional opportunities for growth into new markets that include India as well as Pacific Rim countries and Southeast Asia. At this stage in the forecasting process, this potential work translates to additional revenue not currently included in the Plan.

Stretch Revenue Analysis and Conclusion: As shown in the table above, the five year stretch revenue targets would contribute to the reduction in costs unrecovered from customers by $92 million.

Total stretch revenue targets of $128 million in 2014-2015 increase to $162 million in 2017-2018 and, afterwards, slightly decrease as a result of the wind down of the Mo-99 business, to $153 million in 2018-2019. These projected increases above the reference case in the Corporate Plan represent the expected outcome with the implementation of the new BDF. With the full implementation of the BDF, the company will be positioned to exceed the baseline revenue projections in this plan and reach for the stretch targets outlined in this appendix.

APPENDIX 6: GOVERNMENT FUNDING OF OPERATING COSTS

AECL's commitment to meeting GoC direction around operating costs and the required funding in support of these expenditures are outlined within this section. This commitment is presented along two government directions, the GoC's Deficit Reduction Action Plan of 2012-2013 and the operating budget freeze as announced in the 2013 Speech from the Throne and Update of Economic and Fiscal Projections.

In 2012-2013, AECL made a commitment to live within its means and abide by the spirit and intent of the GoC's Deficit Reduction Action Plan which was initiated that year. AECL established an objective to reduce the demand on GoC funding for operating expenditures by a targeted 7.5 per cent over the next two years with 2011-2012 as the base year. This commitment provides for a cumulative projected reduction of 8.3 per cent for the fiscal year ending 2013-2014.

AECL is also committed to adhering to the GoC freeze of operating budgets for federal organizations resulting in government funding for operations being held constant for 2014-2015 and 2015-2016. To ensure success around these commitments, AECL has launched three initiatives which, together, contribute to the reduction of its operating costs and related government funding. Firstly, AECL continues to focus on productivity enhancements and process improvements in order to drive organizational efficiencies. Secondly, AECL is moving towards a full-cost recovery model for third-party and Government as customer. Thirdly, AECL continues to seek opportunities to grow third-party revenues to provide incremental margins that contribute towards offsetting the requirements from the GoC. These initiatives have and are expected to continue to influence AECL's costs and funding requirements from government as incorporated in the table below.

The enhanced productivity initiative started as a cost reduction program in 2011-2012 and has evolved to an ongoing initiative incorporating Lean Management/Continuous Improvement skills. This strategic initiative as outlined in section five of the Corporate Plan is to "execute sustainable productivity enhancements, institutionalized through the achievement of the corporate Value Proposition, and translated into real business results."

The strategic initiative is governed with oversight at the Board and executive level with a formal senior management steering committee established. Increased training and awareness has increased the effectiveness of the program.

Since the implementation of the initiative there have been a large number of projects contributing to the savings. Some of the more significant initiatives have resulted in reduced contract and overtime costs through various work management improvement initiatives. Other initiatives have resulted in reduced travel compared to the base year

and reduced waste cost due to improved characterization of waste and programs to reduce the amount of waste generated.

These savings, in addition to meeting the overall commitment of reduced operating expenditures, have also supported the absorption of inflationary pressures since 2011-2012.

The expanded use of benchmarking within this initiative has identified new areas to target for reduction. Improving the effectiveness and efficiency of work planning and management; removing non value-added activities from current waste processing; and applying lean methodologies to a larger number of AECL's processes are some of the improvement activities planned for 2014-2015.

As part of the second initiative, and based on its recent review of the decommissioning liability, AECL has provided full recovery of the indirect costs for the NLLP. The table below reflects this shift and the resulting impacts of the cumulative reduction in moving towards a full-cost recovery basis for all customers.

Under the third initiative, increased contributions from third-party customers are projected to contribute to a $9 million reduction in government funding requirements for operating expenses between 2013-2014 and 2014-2015. The two year freeze has also been achieved by maintaining operating costs at the same levels as 2014-2015 for 2015-2016 with top down direction provided that any inflationary pressures or labour rate increases are to be accommodated within existing budgets. These directions are projected to result in a small reduction in FTEs, which will be managed through attrition.

Overall, this plan assumes that an escalation of two per cent would be offset by AECL's initiatives as outlined above until 2017-2018. In 2018-2019, this plan assumes that additional funding would be required to address inflationary pressures which are reflected in the change in pattern of reduced savings compared to the trend in previous years. This reduction also reflects the lower revenues and related margins projected in the latter years, including the anticipated smaller heavy water revenue.

$ Millions	Actual 2011-12	Actual 2012-13	Budget 2013-14	Plan 2014-15	2015-16	2016-17	2017-18	2018-19	5 Year Total
Government Funding									
Operating									
S&T Funding	60	94	108	111	110	110	112	112	555
Mo-99 - ISRP	63	48	39	39	39	19	0	0	97
Costs Unrecovered from Customers	132	100	86	51	52	65	59	67	294
Total Operating	255	241	234	201	201	195	170	180	947
Corporate Plan 2013-14	255	250	234	224	212	211	190		
Savings compared to 2011-12 Base Year									
2014-15 Corporate Plan - Cumulative Reduction %			8.3%	11.9%	11.7%	7.9%	17.1%	13.1%	
2014-15 Corporate Plan - Cumulative Reduction $			21	30	30	20	44	33	157
(adjusted for incremental overhead funded by NLLP)									

APPENDIX 7: AECL BOARD OF DIRECTORS

Section 3.3.1 of the Corporate Plan provides further information on AECL's Board including details on appointments and term lengths[6].

Peter Currie
Appointed Chair of the Board, October 2011
Reappointed October 2013 – ending October 2014
AECL, Chalk River, Ontario

Current directorships include VIXS Systems Inc., Intelius Inc. and Director of Kemptville District Hospital. Former Executive Vice-President and Chief Financial Officer of Nortel Networks Corporation; Vice-Chairman and Chief Financial Officer for the Royal Bank of Canada and Executive Vice-President and Chief Financial Officer at North American Life Assurance Company. Former member of the Board of Governors and Executive Committee of York University and of the Board of York University Development Corp. Former Board Chair of Symcor Inc. and Director of Toronto East General Hospital, C.D. Howe Institute, Affinion Group Inc., Quinte Healthcare Inc., Arise Technologies Corp. and Canadian Tire Corporation Limited. Named Canada's CFO of the Year in 2003 by PricewaterhouseCoopers, Financial Executives International Canada and The Caldwell Partners International. Holds a bachelor Degree of Economics and an MBA from York University. Appointed to AECL Board in October 2008.

Committees: Chair, Audit (April-October 2011); Member, Audit (ex-officio, October 2011-current), Special Advisory (April-October 2011), and Human Resources & Governance (ex-officio, October 2011-current).

Dr. Robert Walker
Appointed President & Chief Executive Officer, October 2011
Reappointed October 2012 – ending October 2014
AECL, Chalk River, Ontario

Current Chair of the Board of the MEOPAR Network of Centres of Excellence. Former Senior Vice-President, Nuclear Laboratories, AECL; Assistant Deputy Minister of Science and Technology, Department of National Defence; and Chief Executive Officer of Defence Research and Development Canada and Chair of the NATO Research and Technology Board. Holds a physics degree from Acadia University, and a Master of Engineering (engineering physics), a PhD (electrical engineering) and an honorary Doctor of Science degree from McMaster University. A graduate of the National Defence College and a Fellow of the Canadian Academy of Engineering. Joined AECL in November 2010.

[6] Section 3.3.1: AECL's Directors, the Board Chair and the President and Chief Executive Officer are appointed by the Government of Canada by Order-in-Council. Directors are normally appointed for a term of three years and are eligible for re-appointment on the expiration of their term. Incumbent directors continue in office until their successors are appointed.

Committees: Member, Audit (ex-officio, October 2011-current), and Human Resources & Governance (ex-officio, October 2011-current).

Dr. Claude Lajeunesse
President Emeritus, Ryerson University, Toronto, Ontario

Current Board Chair of the Green Aviation Research & Development Network and Board member of the Canada Science and Technology Museums Corporation Foundation. Former President and CEO of the Aerospace Industries Association of Canada and the Association of Universities and Colleges of Canada; President and Vice-Chancellor of Concordia University in Montreal and Ryerson University in Toronto; Board member of TD Insurance, SOFINOV (Caisse de dépôt et placement du Québec) and of the Toronto East General Hospital. Holds a PhD in nuclear engineering from Rensselaer Polytechnic Institute in New York. Appointed to AECL Board in March 2005. Reappointed March, 2013.

Committees: Chair, Human Resources & Governance (October 2011-current), and Science, Technology & Nuclear Oversight (April-October 2011); Member, Project Risk Review (April-October 2011), and Special Advisory (April-October 2011).

Gregory Josey
Principal, FORTEN Performance Consulting Inc.

Former Vice President, Finance, and Chief Financial Officer at McNeil Consumer Healthcare, Johnson & Johnson Inc., and Johnson & Johnson – Merck Consumer Pharmaceuticals; Officer and Director of Johnson & Johnson Inc. Canada; Chair of Johnson & Johnson Canadian CFO Council and member of the Ontario CNIB Advisory Board. Holds an H.B.B.A. from Wilfred Laurier University and is a Certified Management Accountant. Appointed March 2013.

Committees: Chair, Audit (August 2013 – Present)

Serge Dupont
Deputy Minister, Natural Resources Canada

Former Associate Deputy Minister; Deputy Minister of Intergovernmental Affairs (Privy Council Office) and Special Adviser to the Minister of Natural Resources on Nuclear Energy Policy. Occupied senior positions in Finance Canada, including Assistant Deputy Minister, Financial Sector Policy, and Director General (Analysis), Tax Policy. Holds a B.Sc. from the University of Ottawa, an M.A.Sc from the University of Waterloo in Management Sciences and an international diploma in public administration from École nationale d'administration in Paris. Serves on Board of Directors of the Public Policy Forum. Appointed March 2013.

James Hall
President & CEO, James Hall Advisors Inc.

Current directorships include Indigo Books & Music Inc., Immunovaccine Inc. and Adventus Intellectual Property Inc. Former Chairman and Chief Executive Officer of Journal Register Company, Senior Vice President & Chief Investment Officer of Working Ventures Canadian Fund Inc., Senior Vice President of Lloyds Bank Canada and sole trustee of an Omers Trust. A Chartered Accountant, Mr. Hall holds an H.B.A. from the Richard Ivey School of Business at the University of Western Ontario. Appointed in August 2013.

Committees: Member, Audit (August 2013 – Present), and Human Resources & Governance (August 2013 – Present).

APPENDIX 8: ACRONYMS

Abbreviation	Description
AECL	Atomic Energy of Canada Limited
AP	Accounts Payable
BD	Business Development
BDF	Business Development Framework
BP	Bruce Power
CANDU	Canada Deuterium Uranium
CEO	Chief Executive Officer
CINS	Canadian Institute for Neutron Scattering
CNBC	Canadian Neutron Beam Centre
CNS	Canadian Nuclear Society
CNSC	Canadian Nuclear Safety Commission
COE	Centres of Excellence
COG	CANDU Owners Group
CRIPT	Cosmic Ray Inspection and Passive Tomography
CRL	Chalk River Laboratories
CSA	Canadian Standards Association
CSTM	Canadian Science and Technology Museum
DGR	Deep Geological Reserve
DIF	Dedicated Isotope Facilities
DWM	Decommissioning and Waste Management
EAMS	Enterprise Asset Management
EBIT	Earnings Before Investment Taxes
EC6	Enhanced CANDU 6
EMP	Emergency Protection
FAA	Financial Administration Act
FAI	Fauske and Associates Incorporated
FTE	Full Time Equivalent
G2	Gentilly-2
Gen-IV	Generation IV
GIF	Generation IV International Forum
GoC	Government of Canada
GoCo	Government-Owned Contractor-Operated
GRAPE	Graphical Animations Package
Gy	Gray

Abbreviation	Description
HEU	Highly-Enriched Uranium
HPGN	Health Physics Neutron Generator
HR	Human Resources
HRMS	Human Resources Management System
HSSE	Health, Safety, Security and the Environment
IAEA	International Atomic Energy Agency
IFRS	International Financial Reporting Standards
IIP	Integrated Implementation Plan
IP	Intellectual Property
IPA	Intellectual Property Agreement
ISMP	Integrated Site Master Plan
ISR	Isotope Supply Reliability
ISRP	Isotope Supply Reliability Program
IT	Information Technology
LEU	Low-Enriched Uranium
LLRWMO	Low-Level Radioactive Waste Management Office
LTIP	Long Term Incentive Plan
MA	Management Area
MAAP	Modular Accident Analysis Program
MAPLE	Multipurpose Applied Physics Lattice Experimental
MB	Manitoba
MIP	Management Incentive Program
Mo-99	Molybdenum-99
MPF	Moly Production Facility
MSF	Management System Framework
NEA	Nuclear Energy Agency
NL	Nuclear Laboratories
NLLP	Nuclear Legacy Liabilities Program
NRC	National Research Council
NRCan	Natural Resources Canada
NRU	National Research Universal
NRX	National Research Experimental
NSERC	National Sciences and Engineering Research Council of Canada
NWMO	Nuclear Waste Management Organization
O&M	Operation and Maintenance
OCI	Organization of Canadian Nuclear Industries
OECD	Organisation for Economic Co-generation and Development
ON	Ontario

Abbreviation	Description
PAA	Program Alignment Architecture
PHAI	Port Hope Area Initiative
PLR	Point Lepreau Refurbishment
PWGSC	Public Works and Government Services Canada
QEWS	Qualified Emergency Water Supply
R&D	Research and Development
R-AECL	Restructured – Atomic Energy of Canada Ltd.
S&T	Science and Technology
SCWR	Super-Critical Water Cooled Reactor
SLOWPOKE	Safe Low Power Critical Experiment
SMAGS	Shielded Modular Above Ground Storage
SMR	Small Modular Reactor
SOC	Site Operating Company
SPORA	Strategic Planning and Operations Research Analysis
SWS	Storage with Surveillance
UK	United Kingdom
URL	Underground Research Laboratory
US & USA	United States of America
VTC	Voluntary Termination Compensation
WANO	World Association of Nuclear Operators
WL	Whiteshell Laboratories
WR-1	Whiteshell Reactor 1
WUO	Wrap-Up Office
XE	Xenon